

**Curriculum Vitae of George K. Nikas**

Dipl. Eng., D.I.C., Ph.D.

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## Summary

**Title and full name:** Dr George K. Nikas

**Country and year of birth:** Hellas, 1969

**Citizenship:** Hellenic from birth and British by naturalization since 2001.

**Address:** London, England; **E-mail:** [george.nikas94@alumni.imperial.ac.uk](mailto:george.nikas94@alumni.imperial.ac.uk) ; **website:** [www.tribology.me.uk](http://www.tribology.me.uk)

### Education

- **Doctor of Philosophy (Ph.D.)** in **Tribology** and **Contact Mechanics**; Imperial College London, Mechanical Engineering Department, Tribology Group; London, England, 1994-1999.
- **Diploma of the Imperial College (D.I.C.)** in **Tribology**; Imperial College London, Mechanical Engineering Department; London, England, 1994-1999.
- **Diploma in Mechanical Engineering** (5-year diploma, 64 courses); National Technical University of Athens, School of Mechanical Engineering; Athens, Hellas, 1988-1994.
- **Mechanical Engineering** (1<sup>st</sup> year); Aristotle University of Thessaloniki, School of Mechanical Engineering; Thessaloniki, Hellas, 1987-1988.

### Professional activity

- **Mechanical Engineer** licensed by the Technical Chamber of Hellas since 1995.
- **Consultant, Research Assistant** and **Research Associate**; Imperial College London, Mechanical Engineering Department, Tribology Group, 1996-2007.
- **Grantee of the Jacob Wallenberg Foundation** – Royal Swedish Academy of Engineering Sciences. Imperial College London, Mechanical Engineering Department, Tribology Group; 2007-2008.
- **Academic Visitor**. Imperial College London, Mechanical Engineering Dept., Tribology Group; 2007-2013.
- **Director**. KADMOS Engineering Ltd (UK company registration number: 09139353), 2014-.

### Membership of professional societies

Member of: **American Society of Mechanical Engineers** (USA, 2005-2017); **Society of Tribologists and Lubrication Engineers** (USA, 2005-2017); **Society of Automotive Engineers** (USA, 2005-2013); **ASM International** (USA, 2018); **Technical Chamber of Hellas** (Hellas, 1995-); **Hellenic Association of Mechanical and Electrical Engineers** (Hellas, 1995-).

### Research activity and related data

- **Publications:** 45 articles + 2 theses + 3 book chapters + 1 edited book + 8 technical reports. Main author in 93% (55/59) and sole author in 68% (40/59) of those publications.
- **Non-self citations:** 1517 citations by 894 documents.
- **h-index** = 21 (21 publications have received at least 21 non-self citations each).
- **Associate Editor** of the ASME Journal of Tribology (2009-2016) and **editorial board member** of 5 other engineering journals.
- **Reviewer** in 56 scientific journals and 2 international conferences having submitted 871 reviews.
- **Reviewer** for Elsevier (2 books and 1 book proposal to date).
- **Expert reviewer** for the Czech Science Foundation (4 research proposals), the Swiss National Science Foundation (2 research proposals), and the European Union (H2020 – 12 research proposals).
- **External member** of the Hellenic Ministry of Education committee for the assessment of academic staff and University departments.
- **Co-supervisor** of doctoral students at Imperial College London, Mech. Eng. Dept. (1996-2004).
- **Webmaster** of the Tribology Group website, Imperial College London, 1998-2011.

### Distinctions

- Ranked 1st among the 47 graduates with same speciality (Mechanical Design) in the School of Mechanical Engineering, National Technical University of Athens, Hellas, 1994.
- Mechanical Engineering Diploma thesis nominated for the annual award of the Technical Chamber of Hellas, 1996 (19 nominations for 333 theses).
- Recipient of a Jacob Wallenberg Foundation award from the Royal Swedish Academy of Engineering Sciences with a grant of 100,000 SEK (\$15,000 USD) for research in materials science, 2007.
- Associate Editor and Editorial Board member in 6 scientific journals. Reviewer in 56 scientific journals. Reviewer of scientific books for Elsevier. Other appointments listed under “Research activity” above.
- Contributed journal articles, book chapters, edited book and lectures by invitation.
- Biographical profile included in 14 Marquis Who’s Who books since 2003, including “Who’s Who in Science and Engineering”, “Who’s Who of Emerging Leaders” and “Who’s Who in the World”.
- 11 awards for excellence and for graduating top in class in all Elementary and High School years (1975-1987). 2 awards from the Mayor of Athens (Hellas) for graduating top in High School. Standard-bearer.

## General information

**Full name:** George K. Nikas **Title:** Dr

**Year of birth:** 1969 **Place of birth:** Hellas

**Citizenship:** Hellenic from birth and British by naturalization in 2001.

**Home address**  
London, England

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**Website:** [www.tribology.me.uk](http://www.tribology.me.uk)

## Education

- **Doctor of Philosophy (Ph.D.)** (specialized in Tribology); Imperial College London, Mechanical Engineering Department, Tribology Group; London, England, 1999. Supervised by Dr R. Sayles and Dr E. Ioannides.
- **Diploma of the Imperial College (D.I.C.) in Tribology**; Imperial College London, Mechanical Engineering Department; London, England, 1999.
- **Diploma in Mechanical Engineering (Dipl. Eng. (M.Sc. equivalent))**; 5-year diploma, 64 courses); National Technical University of Athens, School of Mechanical Engineering; Athens, Hellas, 1994. George Nikas is a professional, chartered Mechanical Engineer, licensed by the Technical Chamber of Hellas (membership number: 71969). Hellas is member of the European Union.
- **Mechanical Engineering** (1<sup>st</sup> year); Aristotle University of Thessaloniki, School of Mechanical Engineering; Thessaloniki, Hellas, 1987-1988.

## Professional activity

### ◆ Employment and related experience

- **Consultant**; Imperial College London, Mechanical Engineering Department, Tribology Group; 1996.
- **Research Assistant**; Imperial College London, Mechanical Engineering Department, Tribology Group; 1997-1999.
- **Imperial College Consultant**; IC Consultants Ltd. (a wholly owned subsidiary of Imperial College London); Imperial College London, Mechanical Engineering Department, Tribology Group; 2000-2002.
- **Research Associate**; Imperial College London, Mechanical Engineering Department, Tribology Group; 1999-2004 and 2005-2007.
- **Grantee of the Jacob Wallenberg Foundation – Royal Swedish Academy of Engineering Sciences**. Imperial College London, Mechanical Engineering Department, Tribology Group; 2007-2008.
- **Academic Visitor**. Imperial College London, Mechanical Engineering Department, Tribology Group; 2007-2013.
- **Director**. KADMOS Engineering Ltd (UK company registration number: 09139353), 2014-.
- **Associate Editor** of the **Journal of Tribology** (American Society of Mechanical Engineers), 2009-2016.
- **Editorial Board member** of **ISRN Tribology** (Hindawi), 2012-2014.
- **Editorial Board member** of **Conference Papers in Science** (Mechanical Engineering section) (Hindawi), 2012-2015.
- **Editorial Board member** of **The Scientific World Journal** – Mechanical Engineering section (Hindawi), 2013-2016.
- **Editorial Board member** of the **International Scholarly Research Notices** – Mechanical Engineering section (Hindawi), 2014-2017.

- **Editorial Board member** of **Strojniški vestnik - Journal of Mechanical Engineering** (University of Ljubljana, Slovenia), 2015-.
- **Reviewer** in 56 scientific journals since 2000. **Reviewer of scientific books** for Elsevier. **Reviewer of scientific projects** for the Czech Science Foundation (Czech Republic), the Swiss National Science Foundation (Switzerland), and the European Union. **Reviewer** for the Hellenic Ministry of Education for academic staff and departments of Hellenic Universities.

#### ◆ Supervision of postgraduate students

Dr Nikas has co-supervised postgraduate students in the Mechanical Engineering Department of Imperial College London. For example:

- Atul S. Rana: “A tribological study of elastomeric reciprocating seals for hydraulic actuators”, Ph.D. in Tribology, started in 1999 and awarded in 2005.
- Ismail S. Z. Jalisi: “A numerical method for the simulation of rough elastomeric contact”, Ph.D. in Tribology, started in 1998 and awarded in 2003.
- Constantine Tsourinakis: “Numerical solution of the 1-D Euler equations using total variation diminishing schemes”, 12-month M.Sc. in Mechanical Engineering, awarded in 1995.

#### ◆ Peer reviewing papers for scientific journals and conferences

Dr Nikas has served as Associate Editor of the Journal of Tribology (American Society of Mechanical Engineers), 2009-2016 and Editorial Board member of ISRN Tribology (2012-2014), Conference Papers in Science (2012-2015), The Scientific World Journal (2013-2016), International Scholarly Research Notices (2014-2017) and Strojniški vestnik - Journal of Mechanical Engineering (2015-). Since 2000, he has submitted 871 reviews of manuscripts to the following 56 journals and 2 conferences.

<b>Journal</b>	<b>Reviews</b>
<b>Journal of Tribology</b> (American Society of Mechanical Engineers, USA) * 86 papers reviewed as Reviewer and 222 papers reviewed as Associate Editor.	308*
<b>Tribology International</b> (Elsevier)	101
<b>Tribology Transactions</b> (Society of Tribologists and Lubrication Engineers, USA)	73
<b>Journal of Engineering Tribology</b> (Institution of Mechanical Engineers, UK)	64
<b>Journal of Mechanical Engineering Science</b> (Institution of Mechanical Engineers, UK)	33
<b>Journal of Automobile Engineering</b> (Institution of Mechanical Engineers, UK)	28
<b>Lubricants</b> (MDPI)	25
<b>Journal of Aerospace Engineering</b> (Institution of Mechanical Engineers, UK)	22
<b>Strojniški vestnik - Journal of Mechanical Engineering</b> (University of Ljubljana, Slovenia)	20
<b>Metals</b> (MDPI)	18
<b>Journal of Power and Energy</b> (Institution of Mechanical Engineers, UK)	17
<b>The Scientific World Journal</b> – Mechanical Engineering section (Hindawi) * 15 papers reviewed as Reviewer and 1 paper reviewed as Associate Editor.	16*
<b>ISRN Tribology</b> (International Scholarly Research Network)	16
<b>Wear</b> (Elsevier)	11
<b>Materials</b> (MDPI)	11
<b>Journal of Process Mechanical Engineering</b> (Institution of Mechanical Engineers, UK)	10
<b>Entropy</b> (MDPI)	8
<b>Tribology Letters</b> (Springer)	7
<b>Journal of Materials: Design and Applications</b> (Institution of Mechanical Engineers, UK)	7
<b>Conference Papers in Science</b> (Hindawi)	5
<b>Defence Technology</b> (Elsevier)	5
<b>Sensors</b> (MDPI)	5
<b>Energies</b> (MDPI)	5
<b>Machining Science and Technology</b> (Taylor & Francis)	4
<b>Applied Sciences</b> (MDPI)	4

<b>International Scholarly Research Notices</b> (Hindawi) * 3 papers reviewed as Associate Editor.	3*
<b>International Journal of Materials and Product Technology</b> (Inderscience Publishers)	3
<b>Applied Mathematical Modelling</b> (Elsevier)	3
<b>Mechanics of Materials</b> (Elsevier)	3
<b>Tribology in Industry</b> (Serbian Tribology Society)	2
<b>International Journal of Vehicle Design</b> (Inderscience Publishers)	2
<b>Journal of Microelectromechanical Systems</b> (Institute of Electrical and Electronics Engineers, USA)	2
<b>Water</b> (MDPI)	2
<b>SAE Technical Papers</b> (SAE)	2
<b>Nanomaterials</b> (MDPI)	2
<b>Recent Patents on Mechanical Engineering</b> (Bentham Science Publishers)	1
<b>Scientific Research and Essays</b> (Academic Journals)	1
<b>TriboTest</b> (Wiley)	1
<b>International Journal of Mechanical Sciences</b> (Elsevier, UK)	1
<b>Journal of Applied Mathematics</b> (Hindawi)	1
<b>Archives of Mechanics</b> (Polish Academy of Sciences)	1
<b>International Journal of Surface Science and Engineering</b> (Inderscience Publishers)	1
<b>Meccanica</b> (Springer)	1
<b>Journal of Mechanical Design</b> (American Society of Mechanical Engineers, USA)	1
<b>Journal of Zhejiang University – SCIENCE A (Applied Physics &amp; Engineering)</b> (Springer)	1
<b>International Journal of Manufacturing Technology and Management</b> (Inderscience Publishers)	1
<b>International Journal of Mechanisms and Robotic Systems</b> (Inderscience Publishers)	1
<b>World Review of Science, Technology and Sustainable Development</b> (Inderscience Publishers)	1
<b>Technologies</b> (MDPI)	1
<b>Mathematical and Computational Applications</b> (MDPI)	1
<b>SAE International Journal of Engines</b> (SAE)	1
<b>International Journal of Computer Applications in Technology</b> (Inderscience Publishers)	1
<b>SAE International Journal of Fuels and Lubricants</b> (SAE)	1
<b>Engineering Failure Analysis</b> (Elsevier)	1
<b>Soft Materials</b> (Taylor & Francis)	1
<b>Lubrication Science</b> (Wiley)	1

<b>Conferences</b>	<b>Reviews</b>
20 <sup>th</sup> International Conference on Wear of Materials, 12-16 April 2015, Toronto, Canada	2
2 <sup>nd</sup> International Conference on Advanced Tribology, 3-5 December 2008, Singapore	1

#### ◆ Peer reviewing research grant applications

Upon invitation, Dr Nikas has acted as external peer reviewer for 4 research grant proposals submitted to the Czech Science Foundation (Czech Republic) during 2007-2009, 2 proposals submitted to the Swiss National Science Foundation (Switzerland) in 2017 and 12 proposals submitted to the European Union under the Horizon 2020 programme in 2019-2020.

#### ◆ Peer reviewing books and book proposals

Upon invitation from Elsevier, Dr Nikas has reviewed the following books and proposals.

- **Flitney R. K.** *Seals and Sealing Handbook* (5<sup>th</sup> ed.). Elsevier (Butterworth-Heinemann); Oxford, England, 2007. ISBN: 978-1856174619.

- **Astakhov V. P.** *Tribology of Metal Cutting*. Tribology and Interface Engineering Series No. 52 (Series ed.: B. J. Briscoe). Elsevier; Oxford, England, 2006. ISBN: 978-0-444-52881-0.
- **Sethuramiah A.** and **Kumar R.** *Modelling of Chemical Wear and Its Relevance to Practice*. Book proposal to Elsevier, 2013.

#### ◆ Book editing

Upon invitation from Research Signpost (publishers of review books in physical sciences), Dr Nikas edited an 8-chapter review book on tribology for which he assembled and supervised a team of 19 distinguished contributors from the USA, UK, Sweden, and Israel. For more details, please see under heading “Book” in the Publications section of this CV.

#### ◆ Other

- In cooperation with his father, Dr Nikas created the material of two- and three- day seminars on rolling bearing theory, technology, applications, mounting/dismounting, and damages. These comprise 5 PowerPoint files with a total of 538 slides and have been taught in Hellas for many years by Dr Nikas’ father (former SKF Hellas General and Technical Manager), having educated thousands of engineers and technicians in industry and academia.
- Created and maintained the website of the Tribology Group in the Mechanical Engineering Department of Imperial College London from 1998 to 2011. In June 2006, he attended the CMS (Content Management System) course at Imperial College London and transformed the original website to its new format under the Oracle Portal CMS.
- Reviewer for the Hellenic Ministry of Education for academic staff and departments of Hellenic Universities (2013-).

#### Membership of professional societies

- Member of the **American Society of Mechanical Engineers** (USA), 2005-2017.
- Member of the **Society of Tribologists and Lubrication Engineers** (USA), 2005-2017.
- Member of the **Society of Automotive Engineers** (USA), 2005-2013.
- Member of **ASM International** (American Society for Metals) (USA), 2018.
- Chartered member of the **Technical Chamber of Hellas** (Hellas) since 1995.
- Member of the **Hellenic Association of Mechanical and Electrical Engineers** (Hellas) since 1995.

#### Distinctions and awards

- Ranked 1st with the highest grade among the 47 graduates with same speciality (Mechanical Design) in the School of Mechanical Engineering, National Technical University of Athens, Hellas, 1994 (with certificate from the University).
- Mechanical Engineering Diploma thesis nominated for the annual award of the Technical Chamber of Hellas, 1996 (19 nominations by the examiners of the Technical Chamber of Hellas for a total of 333 theses).
- Recipient of a Jacob Wallenberg Foundation award in 2007 from the Royal Swedish Academy of Engineering Sciences with a grant of 100,000 SEK (about 7,400 GBP  $\cong$  11,000 EURO  $\cong$  15,000 USD) for research in materials science.
- Associate Editor of the **Journal of Tribology** (American Society of Mechanical Engineers), 2009-2016.
- Editorial Board member of **ISRN Tribology** (International Scholarly Research Network), 2012-2014.
- Editorial Board member of **Conference Papers in Science** (Hindawi), 2012-2015.
- Editorial Board member of **The Scientific World Journal** (Hindawi), 2013-2016.
- Editorial Board member of **International Scholarly Research Notices** (Hindawi), 2014-2017.

- Editorial Board member of *Strojniški vestnik - Journal of Mechanical Engineering* (University of Ljubljana, Slovenia), 2015-.
- Reviewer in 56 journals in science and engineering since 2000, reviewer of engineering books for Elsevier, external reviewer for research grants (Czech Science Foundation; Swiss National Science Foundation; European Union), and reviewer for the Hellenic Ministry of Education for academic staff and departments of Hellenic Universities (2013-).
- Biographical profile included by invitation in the books: “Marquis Who’s Who in Science and Engineering”, editions 7 (2003-2004), 8 (2005-2006), 10 (2008-2009), 11 (2010-2011) and 12 (2016-2017); “Marquis Who’s Who of Emerging Leaders”, 1<sup>st</sup> Ed. (2007); “Marquis Who’s Who in the World”, 26<sup>th</sup> to 33<sup>rd</sup> Ed. (2009 to 2016).
- 11 awards for excellence and for graduating top in class in all Elementary and High School years (1975-1987). 2 awards from the Mayor of Athens (Hellas) for graduating top in High School during 1982-1985. Standard-bearer in both Elementary and High School (honour given to the top ranked student in school).
- For more information, please see under the following headings later in this CV: (a) [Invited papers](#), (b) [Invited book chapters](#), and (c) [Invited presentations and lectures](#).

### Research activity and consultancy

At Imperial College London, Dr Nikas had been the sole researcher in 6 research projects under contract with industrial collaborators, 1 project for the EPSRC, 1 project for the European Union and 1 project funded by a grant awarded by the Royal Swedish Academy of Engineering Sciences. He is the author or co-author of 50 publications (2 theses in public libraries, 38 articles in refereed journals, 7 studies printed in the proceedings of international conferences and 3 book chapters). He has made 6 presentations in international conferences. In addition, he has authored 8 technical reports for the British industry, the British Department of Trade and Industry, the EPSRC, European Union, and the Royal Swedish Academy of Engineering Sciences. The funding attracted by Dr Nikas' research at Imperial College London (Mechanical Engineering Department - Tribology Group) was 680,000 GBP (1 million Euro or 1.3 million USD in 2007). Dr Nikas is also the editor of an 8-chapter tribology book with 11 authors, Associate Editor of the *Journal of Tribology* (American Society of Mechanical Engineers, 2009-2016), Editorial Board member of *ISRN Tribology* (International Scholarly Research Network, 2012-2014), *Conference Papers in Science* (Hindawi, 2012-2015), *The Scientific World Journal* (Hindawi, 2013-2016), *International Scholarly Research Notices* (Hindawi, 2014-2017) and *Strojniški vestnik - Journal of Mechanical Engineering* (University of Ljubljana, Slovenia, 2015-), reviewer in 56 journals in science and engineering since 2000, reviewer of engineering books for Elsevier, external reviewer for research grants (Czech Science Foundation; Swiss National Science Foundation; European Union), and reviewer for the Hellenic Ministry of Education for academic staff and departments of Hellenic Universities (2013-).

### Funded research

1. **2007-2008** (12-month project, grant of £7,400); [Jacob Wallenberg Foundation grant awarded to Dr Nikas to continue his research on materials science](#). Sponsored by the Royal Swedish Academy of Engineering Science.
2. **2005-2007** (18-month project, cost £209,000 for Imperial College); Research Associate. Project: [FOREMOST: Fullerene-based opportunities for robust engineering: Making optimised surfaces for tribology](#). Involving 31 European companies and Universities. Funded by the European Union.
3. **2003-2004** (18-month project, cost £112,000); Research Associate. Project: [Research of fundamental sealing mechanisms needed for zero-leakage high-reliability rotary vane actuators](#). Collaborators: Smiths Aerospace Mechanical Systems (UK) and Busak+Shamban (UK). Sponsor: British Department of Trade and Industry.
4. **2000-2002** (18-month project, cost £51,000); Imperial College Consultant (ICON) and Research Associate. Project: [Traction modelling for a toroidal CVT](#). Collaborator: Torotrak (Development) Ltd (UK). Sponsor: British Department of Trade and Industry through the Foresight Vehicle LINK Programme LAMTRAK.

5. **1999-2001** (18-month project, cost £172,000); Research Associate. Project: [Determination of polymeric sealing principles for end user high reliability](#). Collaborators: Smiths Aerospace Actuation Systems – Cheltenham (UK), Smiths Aerospace Actuation Systems – Wolverhampton (UK), and Polymer Sealing Solutions Ltd (UK). Sponsor: British Department of Trade and Industry.
6. **1998-1999** (18-month project, cost £83,500); Research Assistant. Project: [Development of a contact fatigue model for Continuously Variable Transmissions](#). Collaborator: Torotrak (Development) Ltd (UK). Sponsor: British Department of Trade and Industry.
7. **1997-1998** (12-month project, cost £44,000); Research Assistant. Project: [A study of lubrication mechanisms using 2-phase fluids with porous bearing materials](#). Sponsor: Engineering and Physical Sciences Research Council; Grant GR/89658.
8. **1996** (3-month project); Consultant. Project: [Particle entrapment in an EHD contact of a ball rolling-sliding on a flat surface](#). Collaborator: SKF (The Netherlands).
9. **1996** (1-month project); Consultant. Project: [Trajectories of particles in sliding contacts](#). Collaborator: SKF (The Netherlands).

### Publications (most recent in each category appear first)

- **Peer reviewed archival transactions**

1. **Nikas G. K.** Particle entrapment in line elastohydrodynamic contacts and the influence of intermolecular (van der Waals) forces. *Lubricants* (MDPI), 2020, **8**(5), article 60.
2. **Nikas G. K.** Profile optimization of hydraulic, polymeric, sliding seals by minimizing an objective function of leakage, friction and abrasive wear. *Lubricants* (MDPI), 2020, **8**(4), article 40.
3. **Nikas G. K.** Parametric and optimisation study of rectangular-rounded, hydraulic, elastomeric, reciprocating seals at temperatures between  $-54$  and  $+135$  °C. *Lubricants* (MDPI), 2018, **6**(3), article 77. [Non-self citations: 4]
4. **Nikas G. K.** Fast performance-analysis of rectangular-rounded hydraulic reciprocating seals: mathematical model and experimental validation at temperatures between  $-54$  and  $+135$  °C. *Tribology International* (Elsevier), 2018, **128**, 34-51. [Non-self citations: 10]
5. **Nikas G. K.** Miscalculation of film thickness, friction and contact efficiency by ignoring tangential tractions in elastohydrodynamic contacts. *Tribology International* (Elsevier), 2017, **110**, 252-263. [Non-self citations: 3]
6. **Nikas G. K.** Particle extrusion in elastohydrodynamic line contacts: dynamic forces and energy consumption. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2017, **231**(10), 1320-1340. [Non-self citations: 1]
7. **Nikas G. K.** Algebraic equations for the pile-up geometry in debris particle indentation of rolling elastohydrodynamic contacts. *Trans. American Society of Mechanical Engineers (ASME), Journal of Tribology*, 2016, **138**(2), 021503-14. [Non-self citations: 8]
8. **Nikas G. K.** Modelling dark and white layer formation on elastohydrodynamically lubricated steel surfaces by thermomechanical indentation or abrasion by metallic particles. *Trans. American Society of Mechanical Engineers (ASME), Journal of Tribology*, 2015, **137**(3), 031504-20. [Non-self citations: 7]
9. **Nikas G. K.**, Almond R. V., Burrige G. Experimental study of leakage and friction of rectangular, elastomeric, hydraulic seals for reciprocating motion from  $-54$  to  $+135$  °C and pressures from 3.4 to 34.5 MPa. *Tribology Transactions (STLE)*, 2014, **57**(5), 846-865. [Non-self citations: 41]
10. **Nikas G. K.** Strain-rate effects on the plastic indentation and abrasion of elastohydrodynamic contacts by debris particles. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2014, **228**(1), 22-45. [Non-self citations: 4]
11. **Nikas G. K.** Debris particle indentation and abrasion of machine-element contacts: an experimentally validated, thermoelastoplastic numerical model with micro-hardness and frictional heating effects. *Proceedings of the Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2013, **227**(6), 579-617. [Non-self citations: 3]
12. **Nikas G. K.** An experimentally validated numerical model of indentation and abrasion by debris particles in machine-element contacts considering micro-hardness effects. *Proceedings of the*



- Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2012, **226**(5), 406-438. [Non-self citations: 10]
13. Nikas G. K. A state-of-the-art review on the effects of particulate contamination and related topics in machine-element contacts. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2010, **224**(5), 453-479. [Non-self citations: 55]
  14. Nikas G. K. Eighty years of research on hydraulic reciprocating seals: review of tribological studies and related topics since the 1930s. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2010, **224**(1), 1-23. [Non-self citations: 157]
  15. Nikas G. K. and Sayles R. S. Surface coatings and finite-element analysis of layered fretting contacts. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2009, **223**(2), 159-181. [Non-self citations: 9]
  16. Nikas G. K. and Sayles R. S. Finite-element analysis of layered rolling contacts. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2008, **222**(7), 865-886. [Non-self citations: 12]
  17. Nikas G. K. Effects of operating conditions and friction on the entrapment of spherical debris particles in elliptical contacts. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2007, **221**(6), 727-741. [Non-self citations: 8]
  18. Nikas G. K., Burrige G., Sayles R. S. Modelling and optimization of rotary vane seals. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2007, **221**(6), 699-715. [Non-self citations: 45]
  19. Nikas G. K. A mechanistic model of spherical particle entrapment in elliptical contacts. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2006, **220**(6), 507-522. [Non-self citations: 21]
  20. Nikas G. K., Sayles R. S. Modelling and optimisation of composite rectangular reciprocating seals. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2006, **220**(4), 395-412. [Non-self citations: 47]
  21. Nikas G. K. Boussinesq-Cerruti functions and a simple technique for substantial acceleration of subsurface stress computations in elastic half-spaces. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2006, **220**(1), 19-28. [Non-self citations: 2]
  22. Nikas G. K., Sayles R. S. Study of leakage and friction of flexible seals for steady motion via a numerical approximation method. *Tribology International* (Elsevier), 2006, **39**(9), 921-936. [Non-self citations: 119]
  23. Nikas G. K., Sayles R. S. Computational model of tandem rectangular elastomeric seals for reciprocating motion. *Tribology International* (Elsevier), 2006, **39**(7), 622-634. [Non-self citations: 56]
  24. Nikas G. K. Theoretical study of solid back-up rings for elastomeric seals in hydraulic actuators. *Tribology International* (Elsevier), 2004, **37**(9), 689-699. [Non-self citations: 66]
  25. Nikas G. K., Sayles R. S. Nonlinear elasticity of rectangular elastomeric seals and its effect on elasto-hydrodynamic numerical analysis. *Tribology International* (Elsevier), 2004, **37**(8), 651-660. [Non-self citations: 118]
  26. Nikas G. K. Transient elasto-hydrodynamic lubrication of rectangular elastomeric seals for linear hydraulic actuators. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2003, **217**(6), 461-473. [Non-self citations: 72]
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  29. Nikas G. K. Fatigue life and traction modelling of continuously variable transmissions. *Trans. American Society of Mechanical Engineers (ASME), Journal of Tribology*, 2002, **124**(4), 689-698. [Non-self citations: 37]
  30. Nikas G. K. Particle entrainment in elasto-hydrodynamic point contacts and related risks of oil starvation and surface indentation. *Trans. American Society of Mechanical Engineers (ASME), Journal of Tribology*, 2002, **124**(3), 461-467. [Non-self citations: 30]

31. Nikas G. K. An advanced model to study the possible thermomechanical damage of lubricated sliding-rolling line contacts from soft particles. *Trans. American Society of Mechanical Engineers (ASME), Journal of Tribology*, 2001, **123**(4), 828-841. [Non-self citations: 22]
  32. Nikas G. K. Mathematical analysis of the entrapment of solid spherical particles in non-conformal contacts. *Trans. American Society of Mechanical Engineers (ASME), Journal of Tribology*, 2001, **123**(1), 83-93. [Non-self citations: 44]
  33. Nikas G. K., Sayles, R. S., Ioannides, E. Thermoelastic distortion of EHD line contacts during the passage of soft debris particles. *Trans. American Society of Mechanical Engineers (ASME), Journal of Tribology*, 1999, **121**(2), 265-271. [Non-self citations: 10]
  34. Nikas G. K., Ioannides E., Sayles R. S. Thermal modelling and effects from debris particles in sliding/rolling EHD line contacts - A possible local scuffing mode. *Trans. American Society of Mechanical Engineers (ASME), Journal of Tribology*, 1999, **121**(2), 272-281. [Non-self citations: 24]
  35. Nikas G. K., Sayles R. S., Ioannides E. Effects of debris particles in sliding/rolling elastohydrodynamic contacts. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 1998, **212**(5), 333-343. [Non-self citations: 65]
- **Invited papers (reviewed)**
36. Nikas G. K., Sayles R. S. A study of lubrication mechanisms using two-phase fluids with porous bearing materials. *Proc. Institution of Mechanical Engineers (IMEchE), Part J: Journal of Engineering Tribology*, 2008, **222**(6), 771-783 (special issue on granular lubrication). [Non-self citations: 11]
  37. Nikas G. K., Sayles R. S. Nonlinear elasticity of rectangular elastomeric seals and its effect on elastohydrodynamic numerical analysis. *Sealing Technology* (Elsevier), 2005, **2005**(3), 6-11. Featured article, based on a previous article of the authors and compiled by Mr R. Flitney, Editor of Sealing Technology. [Non-self citations: 28]
  38. Nikas G. K. Elastohydrodynamic lubrication - a qualitative approach to the problem. *Journal of the Hellenic Association of Mechanical and Electrical Engineers*, 1997, **302**, 61-62. Article based on the author's Diploma thesis; invited and compiled by the Editor of the Journal.
- **Invited book chapters**
39. Nikas G. K. Friction and wear of seals. *ASM Handbook Vol. 18 – Friction, Lubrication, and Wear Technology* (ed.: G. Totten). ASM International (American Society for Metals), Ohio, USA, 2017, pp. 957-968.
  40. Nikas G. K. Review of studies on the detrimental effects of solid contaminants in lubricated machine element contacts. First chapter (pp. 3-46) in the book *Reliability Engineering Advances* (ed.: G. I. Hayworth). Nova Science Publishers, New York, USA, 2009. ISBN: 978-1606923290. [Non-self citations: 1]
  41. Nikas G. K. Research on the tribology of hydraulic reciprocating seals. First chapter (pp. 11-56) in the book *Tribology Research Trends* (ed.: T. Hasegawa). Nova Science Publishers, New York, USA, 2008. ISBN: 978-1604569124. [Non-self citations: 10]
- **Reviewed conference proceedings**
42. Reddyhoff T., Underwood R. J., Nikas G. K., Sayles R. S., Spikes H. A. Thermal aspects of debris in EHL contacts. *4<sup>th</sup> World Tribology Congress*, 6-11 September 2009, Kyoto, Japan, paper C1-222, p. 308.
  43. Nikas G. K. Fundamentals of sealing and tribology of hydraulic reciprocating seals. *1-day seminar "Focus on Reciprocating Seals"* organised by the Tribology Group of the Institution of Mechanical Engineers (IMEchE), London, England, 25 June 2008. (Invited by Professor Rob Dwyer-Joyce (Professor in Lubrication Engineering, University of Sheffield, England) on behalf of the IMechE.) [Non-self citations: 3]
  44. Rana A., Sayles R., Nikas G., Jalisi I. An experimental technique for investigating the sealing principles of reciprocating elastomeric seals for use in linear hydraulic actuator assemblies. *2nd World Tribology Congress*, 3-7 September 2001, Vienna, Austria, (proceedings on CD). [Non-self citations: 26]

45. Nikas G. K., Sayles R. S., Ioannides E. **Effects of debris particles in sliding/rolling EHD contacts.** *First World Tribology Congress*, 8-12 September 1997, London, England, p. 271 (abstract). [Non-self citations: 1]
46. Nikas G. K. **Load sharing and profile modification of spur gear teeth in the general case of any flank geometry.** *International Conference on Gears*, 22-24 April 1996, Dresden, Germany, VDI Berichte 1230, 923-935. [Non-self citations: 9]
47. Costopoulos T., Nikas G. K. **Minimization of spur gear dynamic loading through the Generalized Theory of Gearing.** *International Congress - Gear Transmissions 95*, 26-28 September 1995, Sofia, Bulgaria, vol. 1, 52-56. [Non-self citations: 2]
48. Nikas G. K., Costopoulos T. **Generalized Theory of Gearing and elastohydrodynamic lubrication of spur gears.** *International Congress - Gear Transmissions 95*, 26-28 September 1995, Sofia, Bulgaria, vol. 1, 118-123.

- **Theses**

49. Nikas G. K. **Theoretical modelling of the entrainment and thermomechanical effects of contamination particles in elastohydrodynamic contacts.** Ph.D. and D.I.C. thesis; Imperial College London and Science Museum Library, also in the Mech. Eng. Dept. library and in the Tribology Group, Imperial College London, London SW7 2AZ, England, 1999. [Non-self citations: 11]
50. Nikas G. K. **Elastohydrodynamic lubrication and minimization of the dynamic loading of spur gears.** Mechanical Engineering Diploma thesis (National Technical University of Athens, Hellas), library of the Technical Chamber of Hellas (23-25 Lekka Street, 10562 Athens, Hellas), 1994.

- **Book**

51. Upon invitation from Research Signpost (publishers of review books in physical sciences), Dr Nikas edited an 8-chapter review book titled “**Recent Developments in Wear Prevention, Friction and Lubrication**” for which he assembled and supervised a team of 11 distinguished authors from the USA, UK, Sweden and Israel, and 9 reviewers as detailed below. [Non-self citations: 116]

<p><b>Book: Recent Developments in Wear Prevention, Friction and Lubrication</b>  326 pages. Released in February 2010. ISBN: 978-81-308-0377-7.  <b>Publisher:</b> Research Signpost (Kerala, India); www.ressign.com  <b>Editor: George K. Nikas</b></p>
<p><b>Chapter 1</b> (43 pages): <b>The thin film approximation in hydrodynamic, including elastohydrodynamic, lubrication.</b>  <b>Author: Professor Andras Szeri</b> (Professor of Mechanical Engineering; Department of Mechanical Engineering, University of Delaware, USA).</p>
<p><b>Chapter 2</b> (92 pages): <b>Rolling bearing life prediction, theory, and application.</b>  <b>Author: Dr Erwin Zaretsky</b> (Chief Engineer; NASA Glen Research Center, USA; also Adjunct Professor; Case Western Reserve University, Ohio, USA).</p>
<p><b>Chapter 3</b> (21 pages): <b>Laser Surface Texturing and applications.</b>  <b>Author: Professor Izhak Etsion</b> (Yeshayahu Winograd Chair in Fluid Mechanics and Heat Transfer; Mechanical Engineering Department, Technion – Israel Institute of Technology, Israel).</p>
<p><b>Chapter 4</b> (38 pages): <b>Unification of friction and wear.</b>  <b>Author: Professor Michael Bryant</b> (Accenture Endowed Professor of Manufacturing Systems Engineering; Mechanical Engineering Department, University of Texas at Austin, USA).</p>
<p><b>Chapter 5</b> (29 pages): <b>Tribofilms – On the crucial importance of tribologically induced surface modifications.</b>  <b>Authors: Professor Staffan Jacobson</b> (Professor in Materials Science; Department of Engineering Sciences, Uppsala University, Sweden) and <b>Professor Sture Hogmark</b> (Professor in Materials Science and Tribology; Department of Engineering Sciences, Uppsala University, Sweden).</p>
<p><b>Chapter 6</b> (36 pages): <b>Transient phenomena in elastohydrodynamic lubrication.</b>  <b>Author: Dr Romeo Glovnea</b> (Reader in Mechanical Engineering; School of Engineering and Design, University of Sussex, England).</p>

**Chapter 7** (16 pages): **On the Stribeck curve.**

**Authors:** **Professor Michael Khonsari** (Dow Chemical Endowed Chair and Professor; Department of Mechanical Engineering, Louisiana State University, USA) and **Dr E. R. Booser** (Engineering Consultant; USA).

**Chapter 8** (36 pages): **Surface characterization, adhesion measurements and modeling of microelectromechanical systems.**

**Authors:** **Dr Xiaojie Xue** (Analog Devices Inc, USA) and **Professor Andreas Polycarpou** (Professor; Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, USA).

**Chapter reviewers** (in alphabetical order)

- **Professor George Adams** (Professor of Mechanical and Industrial Engineering; Department of Mechanical and Industrial Engineering, Northeastern University, USA).
- **Professor Liming Chang** (Professor of Mechanical Engineering; Department of Mechanical and Nuclear Engineering, The Pennsylvania State University, USA).
- **Professor Rob Dwyer-Joyce** (Professor of Lubrication Engineering; Head of the Mechanical Engineering Department, Tribology Group, Department of Mechanical Engineering, The University of Sheffield, England).
- **Professor Ian Hutchings** (GKN Professor of Manufacturing Engineering, Institute of Manufacturing; University of Cambridge, England).
- **Professor Emeritus Bo Jacobson** (Professor Emeritus; Machine Elements Division, Mechanical Engineering Department, Lund University, Sweden).
- **Dr George Nikas** (Research Associate; Tribology Group, Department of Mechanical Engineering, Imperial College London, England).
- **Professor Homer Rahnejat** (Professor of Dynamics; Dynamics Research Group, Department of Mechanical, Aeronautical and Manufacturing Engineering, Loughborough University, England).
- **Professor Richard Salant** (Georgia Power Distinguished Professor in Mechanical Engineering; Georgia Institute of Technology, The George W. Woodruff School of Mechanical Engineering, Georgia, USA).
- **Professor Ray Snidle** (Professor; Head of Tribology and Contact Mechanics Research Group, School of Engineering, Cardiff University, England).

- **Technical reports**

1. **Nikas G. K. Jacob Wallenberg Foundation grant for research and development in materials science.** 2008; Final report for the Jacob Wallenberg Foundation (Sweden) and the Royal Swedish Academy of Engineering Sciences. (23 pages, 9 figures, 5 appendices.)
2. **Nikas G. K. FOREMOST: Fullerene-based opportunities for robust engineering: Making optimised surfaces for tribology.** 2007; Technical report for the European Union sponsored project codenamed FOREMOST. Imperial College London, Mechanical Engineering Department, Tribology Group. (117 pages, 73 figures including 225 diagrams, 16 tables, 13 detailed equations, 7 appendices.)
3. **Nikas G. K. Research of fundamental sealing mechanisms needed for zero-leakage high-reliability rotary vane actuators.** 2004, Technical report for Smiths Aerospace Mechanical Systems (UK), Busak+Shamban (UK), and the British Department of Trade and Industry. Imperial College London, Mechanical Engineering Department, Tribology Group. (121 pages, 98 figures including 189 diagrams, 94 detailed equations.)
4. **Nikas G. K. Traction modelling for a toroidal CVT.** 2002; Technical report for Torotrak (Development) Ltd (UK) and the British Department of Trade and Industry. Imperial College London, Mechanical Engineering Department, Tribology Group. (77 pages, 29 figures, 46 detailed equations.)
5. **Nikas G. K. Determination of polymeric sealing principles for end user high reliability.** 2001; Technical report for Smiths Aerospace Actuation Systems - Cheltenham (UK), Smiths Aerospace Actuation Systems - Wolverhampton (UK), TISPP UK Ltd (UK), and the British Department of Trade and Industry. Imperial College London, Mechanical Engineering Department, Tribology Group. (124 pages, 60 figures, 94 detailed equations.)

6. **Nikas G. K.** [Development of a contact fatigue model for Continuously Variable Transmissions](#). 1999; Technical report for Torotrak (Development) Ltd (UK). IC Consultants Ltd., London, England. (88 pages, 19 figures, 86 detailed equations.)
7. **Nikas G. K.** [A study of lubrication mechanisms using 2-phase fluids with porous bearing materials](#). 1998; Technical report for the EPSRC (project Grant GR/K 89658). Imperial College London, Mechanical Engineering Department, Tribology Group.
8. **Nikas G. K.** [Particle entrapment in an EHD contact of a ball rolling/sliding on a flat surface](#). 1996; Technical report for SKF (The Netherlands). Imperial College London, Mechanical Engineering Department, Tribology Group. (79 pages, 56 figures, 103 detailed equations.)

### Invited presentations and lectures

1. **Nikas G. K.** [Fundamentals of sealing and tribology of hydraulic reciprocating seals](#). Invited lecture at the 1-day seminar “*Focus on Reciprocating Seals*”, organised by the Tribology Group of the Institution of Mechanical Engineers (IMechE), London, England, 25 June 2008. Invited by Professor Rob Dwyer-Joyce (Professor of Lubrication Engineering, University of Sheffield, England) on behalf of the IMechE.
2. **Nikas G. K.** [Theoretical modelling in Tribology: some real applications and solutions](#). Invited presentation at SKF’s club house in Slottsviken (Gothenburg, Sweden) on 30 October 2007 as one of the Jacob Wallenberg Foundation and Royal Swedish Academy of Engineering Sciences awardees in 2007. Invited by Mr Tom Johnstone, President and Chief Executive Officer of the SKF Group. Audience: more than 20 technical and managerial staff of SKF.
3. **Nikas G. K.** [Determination of polymeric sealing principles for end-user high reliability](#). Invited presentation at Busak+Shamban (Gloucestershire, England) on 24 April 2001. Invited by Mr Guy Burrige, Technical Manager (Aerospace) of Busak+Shamban. Audience: more than 20 technical and managerial staff of Busak+Shamban and Dowty Seals (UK).

### Research interests and expertise

Dr Nikas' research interests are focused on mathematical analysis and computational modelling in the field of Tribology and Contact Mechanics, using analytical and numerical methods. Dr Nikas has been involved in research in the following areas.

- Mechanical and thermal effects of debris particles and oil particulate contamination.
- Elastohydrodynamics and mechanics of polymeric and composite seals, rolling bearings and spur gears.
- Elastohydrodynamics and contact fatigue of Infinitely Variable Transmissions.
- Finite element analysis of surface coatings.
- Hydrodynamics of thrust and journal bearings, including gas bearings.
- Contact fatigue and fatigue life calculation of machine elements.
- Elasticity, thermoelasticity, poroelasticity and rubber elasticity.
- Finite difference and finite element analysis. Analytical solution of differential equations.

### Computing skills and development of engineering software

A keen Fortran 77/90/95 programmer and computer enthusiast, going as far as programming in Assembly language for 8086 compatible processors and batch programming in DOS, Dr Nikas has 32 years of working experience with personal computers, past and present versions of Microsoft Windows (3.xx, 95/98, 2000, XP, 7, 10) and Office products (Word, Excel, PowerPoint, FrontPage, Microsoft Expression Web 4), graphics, numerical and statistical analysis software (e.g. Grapher, Surfer, DataFit), website development (created two academic web sites, one of which was the website of the Tribology Group at Imperial College London 1998-2011), and working experience of Finite Element Analysis commercial software (ADINA). He has developed many complex computer programs since the 1990s. Following is a list of the main programs developed by using the Fortran 95 programming language and Lahey/GNU compilers. Some of these were distributed to industrial

collaborators under contract with Imperial College London and were developed for the author's research projects.

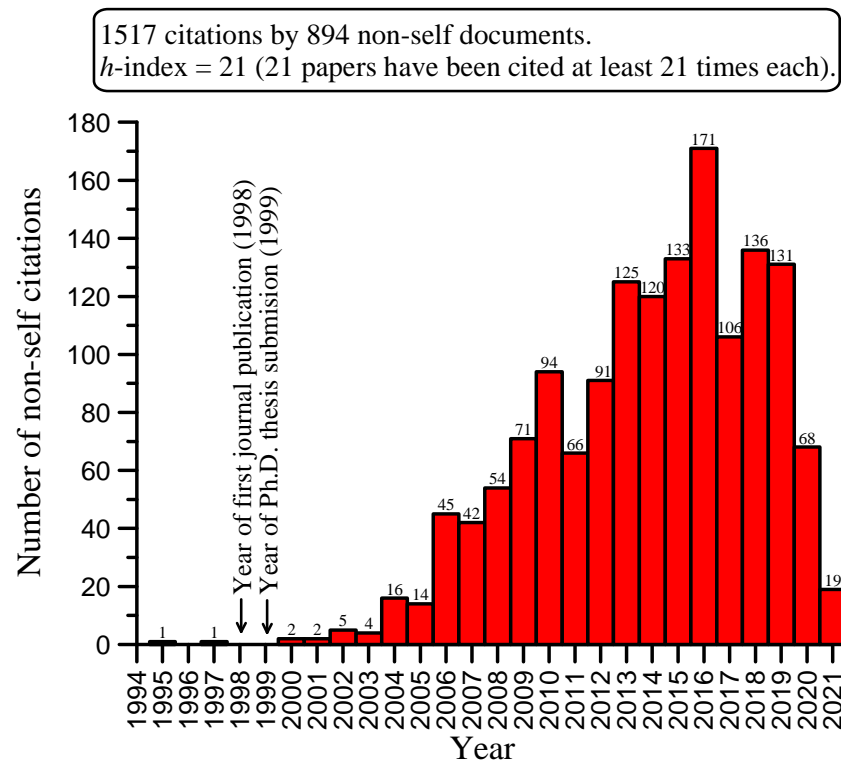
- Program **ROVAS** (version: 1.1.3; code length: 1421 lines). Transient, smooth elasto-hydrodynamic lubrication analysis, mechanics and performance analysis of composite seals (PTFE-elastomer-PTFE) of goalpost shape for rotary vane actuators. This also covers rectangular-rounded reciprocating polymeric seals in general. **Licensed users: Smiths Aerospace (UK) and Busak+Shamban (Trelleborg) (UK).**
- Program **SEAL** (version: 1.1.1; code length: 2549 lines). Transient, rough, elasto-hydrodynamic lubrication analysis, mechanics and performance analysis of rectangular, elastomeric, reciprocating seals and back-up rings. **Licensed users: Smiths Aerospace (UK) and Busak+Shamban (Trelleborg) (UK).**
- Program **TORO** (version: 2.3.0; code length: 2088 lines). Transient, rough elasto-hydrodynamic lubrication analysis, 3-dimensional stress and contact fatigue analysis of toroidal Infinitely Variable Transmissions. **Licensed user: Torotrak (Development) Ltd (UK).**
- Program **PhD** (version: 7.3.0; code length: 3996 lines). Thermoviscoplastic effects of solid contamination particles in rectangular elasto-hydrodynamic contacts. Three-dimensional subsurface elastic stress analysis; surface thermoviscoplastic displacements in concentrated contacts from squashed ductile debris particles; frictional heating and flash temperature analysis; particle entrapment analysis; formation of tribochemical layers. Program originally developed for the author's doctoral research.
- Program **ROSEAL** (version 1.1.2; code length: 964 lines). Rough thermoelasto-hydrodynamic lubrication analysis, solid mechanics, contact mechanics and performance analysis of rectangular-rounded, polymeric, hydraulic reciprocating seals.
- Program **MINISEAL** (version 1.0.4; code length: 602 lines). Profile optimization of hydraulic, polymeric, sliding seals to minimize an objective function of mass leakage rate, friction force and abrasive wear under leakage, friction, structural-strength and manufacturability constraints.
- Program **ENTRAP** (version 1.3.3; code length: 1030 lines). Analysis of solid spherical particle entrapment in lubricated, rolling-sliding contacts, rectangular and elliptical contacts.
- Program **SKF** (version: 1.4.1; code length: 798 lines). Solid particle entrainment and entrapment analysis in elasto-hydrodynamic contacts. **Developed for SKF (The Netherlands).**
- Program **NIVAC** (version 1.8.2; code length: 563 lines). Material suction calculations for single-hosed vacuum systems related to vacuum trucks and mobile vacuum equipment. **Developed for the author's private company (KADMOS Engineering Ltd.) and his collaboration with the vacuum-truck and vacuum-system manufacturer DISAB (Sweden).**
- Program **POROUS** (version 1.3.1; code length: 340 lines). Performance analysis of porous bearing materials saturated with oil containing small particles. Developed for Dr Nikas' EPSRC project in 1997.
- Program **LOAD** (version: 1.5.0; code length: 1055 lines). Calculation of the static load distribution and corresponding tooth flank modifications to minimize the dynamic loading of spur gears with general tooth flank geometries. Developed for the author's Mechanical Engineering Diploma thesis.
- Program **PILE** (version 1.1.1; code length: 524 lines). Calculation of the geometrical profile of material piling up in normal, quasistatic, elastoplastic indentation of metallic half-spaces by rigid conical indenters and rigid or plastically deformable spherical indenters.
- Program **TRAJECTOR** (version: 1.0.0; code length: 262 lines). Computation of trajectories of solid particles trapped in bearing contacts. **Licensed user: SKF (The Netherlands).**
- Program **FILM** (version 1.2.0; code length: 142 lines). Calculation of the central and minimum film thicknesses, average and maximum contact pressures, contact dimensions, elastic deflection, and the lambda ratio of line and elliptical lubricated contacts, including corrections for thermal and roughness effects. Based on experimentally validated formulae.
- Program **EHL** (version 1.0.0; code length: 366 lines). Solution of the elasto-hydrodynamic problem for line contacts and Newtonian fluids under steady-state conditions. Developed for the author's Mechanical Engineering Diploma thesis.

## Languages spoken and written

Hellenic (native) and English (fluent). Dr Nikas is a London resident since 1994 and naturalised British Citizen since 2001.

## Citations (non-self)

Dr Nikas has been cited in at least 894 scientific publications by independent researchers with at least 1517 citations.  $h$ -index = 21 (21 publications have received at least 21 non-self citations each). Citation numbers are quoted for each of Dr Nikas' publication earlier in this CV. The following figure summarizes this information.



### • Citations (non-self) in scientific journals

1. **Nogi T.** Report on First World Tribology Congress. *Journal of Japanese Society of Tribologists*, 1997, **42**(11), 892-894.
2. **Kang Y. S., Sadeghi F., Ai X.** Debris effects on EHL contact. *Journal of Tribology*, 2000, **122**(4), 711-720.
3. **Miettinen J., Andersson P.** Acoustic emission of rolling bearings lubricated with contaminated grease. *Tribology International*, 2000, **33**(11), 777-787.
4. **Sjöström H., Wikström V.** Diamond-like carbon coatings in rolling contacts. *Journal of Engineering Tribology*, 2001, **215**(6), 545-561.
5. **Goldstein R. J., Eckert E. R. G., Ibele W. E., Patankar S. V., Simon T. W., Kuehn T. H., Strykowski P. J., Tamma K. K., Bar-Cohen A., Heberlein J. V. R., Davidson J. H., Bischof J., Kulacki F. A., Kortshagen U., Garrick S.** Heat Transfer – A review of 1999 literature. *International Journal of Heat and Mass Transfer*, 2001, **44**(19), 3579-3699.
6. **Sjöström H., Wikström V.** Diamond-like carbon coatings in rolling contacts. *VDI Berichte*, 2002, **1706**, 675-696.
7. **Olver A. V.** Gear lubrication – A review. *Journal of Engineering Tribology*, 2002, **215**(5), 255-267.
8. **Teo K.-M., Lafdi K.** Effect of thermal property variation on surface grooving. *Journal of Tribology*, 2002, **124**(2), 274-280.

9. Shi D., Qin D., Xu W. Meshing control of the double-enveloping hourglass worm gearing under the conditions of existing the errors and the load. *Mechanism and Machine Theory*, 2004, **39**(1), 61-74.
10. Benitez F. G., Madrigal J. M., del Castillo J. M. Infinitely variable transmission of ratcheting drive type based on one-way clutches. *Journal of Mechanical Design*, 2004, **126**(4), 673-682.
11. Kang Y. S., Sadeghi F., Hoepflich M. R. A Finite Element model for spherical debris denting in heavily loaded contacts. *Journal of Tribology*, 2004, **126**(1), 71-80.
12. Liu X., Liu K., Jiao M., Wang W., Ding S. Effects of nano-particles on the tribological and thermal properties of piston ring-cylinder liner. *Tsinghua Science and Technology*, 2004, **9**(3), 286-289.
13. Lee S., Heuberger M., Rousset P., Spencer N. A tribological model for chocolate in the mouth: General implications for slurry-lubricated hard/soft sliding counterfaces. *Tribology Letters*, 2004, **16**(3), 239-249.
14. Andrei L., Walton D., Andrei G., Mereuta E. Influence of a non-standard geometry of plastic gear on sliding velocities. *The Annals of University "Dunarea De Jos" of Galati, Tribology*, 2004, Fascicle VIII, 11-16.
15. Du L., Xu B., Dong S., Yang H., Wu Y. Current research developments of abrasive wear in lubricated condition containing a solid contaminant. *Lubrication Engineering*, 2004, **4**, 39-42.
16. Shibata M. Trends of studies on rolling contact fatigue life and recent results. *JTEKT Engineering Journal* (English ed.), 2004, **164E**, 8-13.
17. Flitney B. Review of features in Sealing Technology during the last year. *Sealing Technology*, 2005, **2005**(5), 6-11.
18. Zmitrowicz A. Wear debris: a review of properties and constitutive models. *Journal of Theoretical and Applied Mechanics*, 2005, **43**(1), 3-35.
19. Hernandez Battez A., Fernandez Rico J. E., Navas Arias A., Viesca Rodriguez J. L., Chou Rodriguez R., Diaz Fernandez J. M. The tribological behaviour of ZnO nanoparticles as an additive to PAO6. *Wear*, 2006, **261**(3-4), 256-263.
20. Akehurst S., Parker D. A., Schaaf S. CVT rolling traction drives – A review of research into their design, functionality, and modeling. *Journal of Mechanical Design*, 2006, **128**(5), 1165-1176.
21. Abouel-Kasem A. Lifetime estimation and design of elastomeric seals with reinforced metal end caps. *Sealing Technology*, 2006, **2006**(3), 5-9.
22. Sada T., Mikami T. Effect of lubricant film thickness on ball bearing life under contaminated lubrication (Part 2): Relationship between film thickness and dents formation. *Japanese Journal of Tribology*, 2006, **50**(1), 35-42.
23. Sada T., Mikami T. Effect of lubricant film thickness on ball bearing life under contaminated lubrication (Part 2): Relationship between film thickness and dents formation. *Journal of Japanese Society of Tribologists*, 2006, **50**(1), 62-67.
24. Sada T., Mikami T. Effect of lubricant film thickness on bearing life under contaminated lubrication. Part 2: Relationship between film thickness and dent formation. *JTEKT Engineering Journal* (English ed.), 2006, **1001E**, 30-34.
25. Abouel-Kasem A. Numerical analysis of leakage rate for the selection of elastomeric sealing materials. *Sealing Technology*, 2006, **2006**(11), 7-11.
26. Liu K., Wang W., Zhang B., Jiao M.-H. Combined effect of the rough surface and particle morphology on the thermal property of the tribopair. *Journal of Hefei University of Technology (Natural Science)*, 2006, **29**(11), 1341-1345.
27. Yoo J.-C., Yeo K.-M., Park T.-J., Kang B.-R. Analysis of check valve seal for CNG vehicle fuel supply line. *Journal of the Korean Society of Tribologists and Lubrication Engineers*, 2006, **22**(6), 329-334.
28. Yoo M.-H., Kwon J.-H., Lee T.-S. Computational and experimental investigation on U-type seal of hydraulic actuator. *Journal of the Korean Society of Precision Engineering*, 2006, **23**(12), 80-87.
29. Salant R. F., Maser N., Yang B. Numerical model of a reciprocating hydraulic rod seal. *Journal of Tribology*, 2007, **129**(1), 91-97.
30. Salant R. F. Progress towards a realistic numerical model for elastomer reciprocating seals. *Sealing Technology*, 2007, **2007**(1), 7-11.



31. Maru M. M., Castillo R. S., Padovese L. R. Study of solid contamination in ball bearings through vibration and wear analysis. *Tribology International*, 2007, **40**(3), 433-440.
32. Wang W., Liu K., Jiao M. Thermal and non-Newtonian analysis on mixed liquid-solid lubrication. *Tribology International*, 2007, **40**(7), 1067-1074.
33. Tang J., Yang W., Ding Y.-M., Li J., Zhang Y., Lu B.-T. Finite Element Analysis of rectangular rubber seals. *Lubrication Engineering*, "Lubrication and Seal", 2007, **32**(2), 36-39.
34. Hu Y., Zhang J.-F., Cui W.-C. Sealing ability research on movable rescue bell. *Chuan Bo Li Xue/Journal of Ship Mechanics*, 2007, **11**(2), 221-230.
35. Volder M., Ceyskens F., Reynaerts D., Puers R. A PDMS lipseal for hydraulic and pneumatic microactuators. *Journal of Micromechanics and Microengineering*, 2007, **17**(7), 1232-1237.
36. Abu Jadayil W. M., Flugrad D. R. Fatigue life investigation of solid and hollow rollers under pure normal loading. *TriboTest*, 2007, **13**(4), 165-181.
37. Waikar R. A., Guo Y. B. Residual stress evolution and mechanical state of hard machined components in sliding contact. *Tribology Transactions*, 2007, **50**(4), 531-539.
38. Wennehorst B., Poll G. Influence of lubricant contaminants on the service life and working properties of roller bearings. *Tribologie und Schmierungstechnik*, 2007, **54**(5), 11-17.
39. Jin Z., Zhang J. Modelling and calculating of composite seals for rotary vane actuator. *Chinese Hydraulics and Pneumatics*, 2007, **10**, 18-21.
40. Du L.-Z., Xu B.-S., Yang H., Zhang W.-G. Microstructure and wear resistance in sand containing oil lubrication of the high velocity arc sprayed 3Cr13 steel coating. *Heat Treatment of Metals*, 2007, **32**(5), 10-13.
41. Yoo M.-H., Lee T.-S., Do J.-S., Kwon J.-H. Experimental investigation on the non-linearity of Nitrile Butadiene rubber. *Elastomer*, 2007, **42**(3), 159-167.
42. Du L.-Z., Xu B.-S., Yang H., Zhang W.-G. Tribological behaviour of supersonic plasma sprayed 12Co-WC coating in sand containing oil lubrication. *Materials Protection*, 2007, **40**(10), 65-67.
43. Jiang S.-Q., Duan M.-H. The design of hydraulic and control system of transmission test platform. *Chinese Hydraulics & Pneumatics*, 2007, issue 10, 21-24.
44. Wang J., Yuan J., Wang Q., Xue Z., Hong Y., Zhu P. Experimental investigation of scuffing failure with four-ball machine. Part I: Micro particle additives. *Lubrication Engineering*, "Lubrication and Seal", 2007, **32**(11), 31-34.
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