

DANIEL RITTEL

CURRICULUM VITAE

(updated February 2020)

PERSONAL

Name: Daniel Rittel

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ACADEMIC DEGREES

1983-1988 Ph.D., Materials Science.
The Hebrew University of Jerusalem, The Graduate School of Applied
Science and Technology.

1981-1983 M.Sc., Materials Science (with distinction).
The Hebrew University of Jerusalem, The Graduate School of Applied
Science and Technology.

1975-1979 B.Sc., Materials Engineering (Specialization in Nuclear Engineering).
Ben-Gurion University of the Negev, Beer-Sheva, Materials and
Nuclear Engineering Departments.

ACADEMIC APPOINTMENTS

Chair Catedra de Excellencia. University Carlos III, Dept. of Continuum
Mechanics and Structures, Madrid, Spain. 2019.

Adjunct Professor Beijing Institute of Technology (BIT)

Honorary Professor University Carlos III, Dept. of Continuum Mechanics and
Structures, Madrid, Spain. 2013-present.

Chair Catedra de Excellencia. University Carlos III, Dept. of Continuum
Mechanics and Structures, Madrid, Spain. Sept 2011-2012.

Chair The Zandman Chair in Experimental Mechanics. April 2009,
Technion.

Chair Clark B. Millikan Visiting Professor in Aeronautics (08/ 2006 -
08/2007).
California Institute of Technology, Graduate Aeronautical
Laboratories, Pasadena, CA.

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- Professor April 2006, Faculty of Mechanical Engineering, Technion, Israel Institute of Technology.
- Associate Professor December 2000, Faculty of Mechanical Engineering, Technion, Israel Institute of Technology.
- Senior Lecturer March 1997, Faculty of Mechanical Engineering, Technion, Israel Institute of Technology.
- Lecturer February 1994, Faculty of Mechanical Engineering, Technion, Israel Institute of Technology.
- 1991-1994 Research Scientist
Ecole Polytechnique, Solid Mechanics Division
Palaiseau, France.
- 1989-1990 Postdoctoral Associate
Yale University, Dept. of Mechanical Engineering.
New Haven, CT, USA.
- 1983-1988 Lecturer
Betzael Academy of Arts, Jerusalem.

PROFESSIONAL EXPERIENCE

- 1986-1988 Associate Director.
RADIANT Engineering and Technology Ltd.
Failure analysis and Materials Engineering.
- 1981-1988 Materials Engineer
The Hebrew University of Jerusalem, Graduate School of Applied Science and Technology.
Specializing in metallurgical, mechanical testing and analysis of engineering materials. Failure analyst.
- 1978-1979 Research Assistant
Ben-Gurion University, Materials Engineering Department.
Specializing in the study of anomalous diffusion in V-Co alloys by means of radioactive tracers.

SPECIAL LECTURES

- July 2019 **Window on Science**, EORD/AFOSR, Wright Patterson AF Base, Dayton OH.
- August 2018 **Invited special lectures series**
BIT Beijing, Mechanical Engineering Dept.
Invited series on *Mechanical properties of engineering materials*.
- December 2017 **Invited GIAN special lectures series**
IIT Kanpur, Mechanical Engineering Dept.
Invited series on *Failure of Materials*.

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- February 2017 **Invited special lectures series**
Innsbruck University, Civil Engineering Dept.
Invited series of 5 lectures on *Failure of materials*.
- July 2015 **Invited special lectures series**
Beijing Institute of Technology, Materials Engineering Dept.
Invited series of 5 lectures and 2 special seminars (21 hours), on *(dynamic) failure of materials*.
- July 2012 **Summer School**
CISM, Udine, Italy, Constitutive relations of materials under impact loadings: Experimental, theoretical and numerical aspects.
Invited series of 3 lectures (5 hours), on dynamic failure of materials.
- March 2007 **Invited special lectures series**
University of Tokyo, Dept. of Earth and Planetary Science. Center of Excellence for Earth Science
Invited series of 2 lectures (4 hours), on the dynamic failure of materials.
- March 2005 **Invited special lectures series**
University of Tokyo, Dept. of Earth and Planetary Science.
Invited series of 5 lectures (22 hours), including laboratory practice, on *"Material failure: models and experiments"*

EDITORIAL ACTIVITIES

Current

- May 2018 **Editorial Board**, Defence Technology (Chinese).
July 2015 **Editorial Board**, Explosion and Shock Waves (Chinese).
September 2014 **Editorial Advisory Board**, Int. J. of Impact Eng.
August 2008 **Associate Editor**, Mechanics of Materials.
March 2007 **Editorial Board**, Int. J. of Eng. Science.
May 2015 **Editorial Board**, Strain

Past

- May 2007-June 2014 **Editorial Advisory Board**, The Open Mechanics Journal.
July 2005-Dec. 2014 **Associate Technical Editor**, Experimental Mechanics.

APPOINTMENTS AS VISITING SCIENTIST

- Sept 2019-2020 Catedra de Excellencia, University Carlos III Madrid, Dept. of Continuum Mechanics and Structures.
- Feb. 2017 AIANI Fellow, University of Innsbruck
- Sept 2011-2012 Catedra de Excellencia, University Carlos III Madrid, Dept. of Continuum Mechanics and Structures.
- 08/2001-present Visiting Associate, California Institute of Technology

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Graduate Aeronautical Laboratories
Pasadena, CA

- 08/2006-08/2007 Clark B. Millikan Visiting Professor in Aeronautics
California Institute of Technology
Graduate Aeronautical Laboratories
Pasadena, CA
- 09/2000-02/2001 Maître de Recherches
École des Mines de Paris
Centre des Matériaux, PM Fourt, France.
- 03/2000-08/ 2000 Visiting Professor, California Institute of Technology
Graduate Aeronautical Laboratories, Pasadena, CA

RESEARCH INTERESTS

Mechanics and Materials. Fracture mechanics (static and dynamic, damage). Numerical (FEM) modelling of material / structural behavior. Thermomechanical couplings. Mechanical metallurgy. Failure analysis of materials/mechanical systems. Soft matter.
Geophysics. Mechanical and failure properties of volcanic magma at high ejection rates.
Biomechanics and failure of dental implants.

TEACHING EXPERIENCE

- Technion *Undergraduate:*
Statics; Laboratory on Mechanics and Control (M4); Theory of the Strength of Materials; Special Project in Mechanical Engineering, Failure of Materials, Fracture Mechanics.
- Graduate:*
Mechanical Properties of Engineering Materials, Seminar Work in Mechanical Engineering (M.E.), Stress waves in Solids, Fracture Mechanics.
- Caltech Failure of Materials (AE225, 2000), Dynamic Behavior of Materials (AE215, 2006), Mechanics and Materials Aspects of Fracture (AE213, 2006), Plasticity (AE223, 2006)
- Betzalel Metallurgy for Jewelers, 1983-1988.

MEMBERSHIP IN SCIENTIFIC AND PROFESSIONAL SOCIETIES

Corresponding Member (Israel) of DYMAT
Member of The Materials Society, TMS.
Fellow of the American Society of Mechanical Engineers, ASME.
Fellow of the Society for Experimental Mechanics, SEM.
Member of the European Society for Mechanics, EUROMECH
Member of the Israel Society for Theoretical and Applied Mechanics, ISTAM

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Member of the European Society for Structural Integrity, ESIS

Member of the European Society for Biomaterials

ADMINISTRATIVE POSITIONS

December 2012 - 2018	Member of the Standing Committee for evaluation of Research Staff, TRDF.
Oct. 2017-present	Head, Tribology Laboratory
April 2011-2018	Deputy Senior Vice President, Technion
March 2009- 2012	Member of the Standing Committee for non-tenured Faculty
December 2008-2012	Member of the Research Committee, Technion
September 2008 – present	Member of the Scientific Committee, Foundation France Israel.
January 2008-2009	Senate member, Technion.
August 2007-2019	Member of the Academic Council, Azrieli Jerusalem College of Engineering
April 2004-present	Head, Materials Mechanics Center, Technion
Dec. 2003-Dec 2006	Member, Interdepartmental Committee for Polymer Engineering, Technion
April 2001-July 2006	Head, Danciger Teaching Laboratories, Technion
Sept. 1998-present	Corresponding member of the Conférence des Grandes Ecoles (CGE-ARIEL, France).
Oct. 1997-March 2000	In charge of the Faculty Seminar, Faculty of Mechanical Engineering, Technion
1995-2004	Head of the “Materials Minor”, Faculty of Mechanical Engineering.

AWARDS & DISTINCTIONS

2019	Chevalier de l'ordre des Palmes Académiques (France).
2019-2020	Chair of Excellence (6 months), Universidad Carlos III, Madrid, Spain.
2018	B. Lazan Award , Society of Experimental Mechanics for “ <i>seminal contributions to the scientific and technological understanding of behavior of materials under extreme loading conditions</i> ”.
2017	Adjunct Professor and Doctoral Advisor , Beijing Institute of Technology.
2017	Hershel Rich Technion Innovation Award (with Assoc. Prof. N. Drimer).
2017	AIANI Fellow and Guest Professor (2 weeks), University of Innsbruck.
2015	Fellow , American Society of Mechanical Engineers (ASME).
2015	Gili Agostinelli Prize (The International Gili Agostinelli Prize <i>for pure or applied mechanics, mathematics applied to the physical, natural and engineering sciences as well as biological and medical sciences</i>). Torino Academy of Sciences.
2013	Honorary Professor , Univ. Carlos III, Madrid, Spain
2013	Cooper Prize for academic excellence.
2012	Fellow , Society of Experimental Mechanics.
2011-2012	Chair of Excellence (6 months), Universidad Carlos III, Madrid, Spain.
2009	Lt. Gen. A. Peled Research Fund for armor related subjects, Technion.

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- 2009 **The Zandman Institute Chair** in Experimental Mechanics, Technion
2006-2007 **Clark B. Millikan Chair** in Aeronautics, Caltech, USA.
2005 **Lt. Gen. A. Peled Research Fund** for armor related subjects, Technion.
2002 **A. Goldberg Research Prize**, Technion.
1988 **Elected** to represent Israeli research students at SAMPE European
Chapter Conference, Milano, Italy.
1982 **Fellowship** in the memory of Professor A.S. Tetelman, HUJ.

GRADUATE STUDENTS and POSTDOCTORAL ASSOCIATES

Postdoctoral Associates

Ph.D. in progress

1. **O. Rijensky**, (2013), “A study of wave slamming on composite Al-Polyurea plates”. Direct track.

M.Sc. in progress

1. **Bat Hen Varfman**, (2019), “Shock attenuation of MC gels”.
2. **O. Guetta**, (2019), “Modelling of inverse freezing gels”, *Sidney and Beatrice Wolberg Prize for outstanding final project, 2019*
3. **O. Afyay Fonaryov**, (2018), “Measuring the fracture toughness of advanced ceramics”
4. **T. Nachman**, (2018), “Fracture of advanced composite materials” (co-advisor Dr. O. Shor).
5. **G. Gil Goviazin**, (2018), “The dynamic mechanical properties of 3D welded structures” (co-advisor Dr. A. Shirizly).
6. **D. Vilyatser**, (2018), “Fracture mechanics of laminated composites (co-advisor Dr. O. Shor).

Former Postdoctoral Associates

1. **Dr. Jing Xie** (2016-2018)
2. **Dr. Huseyn G. Aksoy** (2010-2011)
3. **Dr. A. Dorogoy** (2003-2005)

Ph.D. completed

1. **R. Fadida**, (2020), “Printed void-containing materials”. (co-advisor Dr. A. Shirizly).
2. **J.C. Nieto Fuentes**, (2019), “A reassessment of thermomechanical coupling in solids”, OUTCOME program.
3. **Y. Rotbaum**, (2019), “Energy mitigation in inverse-freezing gels”.
4. **LH. Zhang**, (2018), “Adiabatic shear”. (co-advisor Prof. S. Osovski).
5. **K. Shemtov-Yona**, (2018), “Mechanical reliability of dental implants”. *HP-Indigo Award for Novel and Innovative Research, 2019*.
6. **M. Dolinsky**, (2016), “Energy concepts in dynamic failure”. (Direct Ph.D. program).

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7. **E. Ben-David**, (2015), "Dynamic plasticity at the nanoscale", (Principal Advisor Prof. D. Shilo).
8. **Z. Lovinger**, (2014), "Multiple spontaneous shear banding". *Pazi Price for Excellent PhD Research, 2014*.
9. **A. Belenky**, (2013), "Dynamic flexural strength of advanced ceramics and its relation to structural defects".
10. **S. Osovski**, (2013), "Adiabatic shear from a microstructural point of view". **The Jacobs Excellence Scholarship Award, 2011. Barazani Prize, 2014.**
11. **H. Saguy (Cohen)**, (2008), "Crack identification using ACPD techniques". *The David and Olga Pnueli Prize, 2008*.
12. **Z. Wang**, (2008), "Experimental study of adiabatic shear band formation".
13. **A. Neuberger**, (2006), "Blast protection of structures" (co-advisor until 2004, Prof. A.L. Yarin). *The David and Olga Pnueli Prize, 2007*.

M.Sc. completed

1. **R. Tzemach**, (2018), "Adiabatic shear banding and microstructure" (co-advisor Dr. A. Venkert). Degree not completed. Cessation of studies
2. **A. Godinger**, (2017), "Ballistic performance of confined glass" (co-advisor Dr. A. Dorogoy).
3. **D. Blumer**, (2014), "Impact of transparent ceramics with controlled microstructure". *M.Sc. cum laude*
4. **D. Levy**, (2016), "Impact failure of additively printed materials". (co-advisor Dr. A. Shirizly).
5. **N. Stivi (Deloya)**, (2014), "Failure of a brittle polymer". (co-advisor Dr. A. Sides).
6. **R. Korabi**, (2016), "Modeling the dental implant-bone interaction". (co-advisor Dr. A. Dorogoy). Incumbent of Vatat fellowship for Outstanding Minority Graduate Students. *Eli Altus Prize for Research, 2019. M.Sc. cum laude*.
7. **S. Cibola**, (2014), "Dynamic tension of brittle polymers"
8. **E. Avriel**, (2013), "Ultra high strain rates by electromagnetic loading".
9. **G. Shapira**, (2011), "Pressure sensitivity in metals". (Co-advisor Dr. B. Karp).
10. **L. Glikin**, (2015), "Impact properties of confined ceramics and polymers".
11. **Y. Rotbaum**, (2015), "Dynamic necking of metals".
12. **R. Fadida**, (2015), "Dynamic mechanical properties of printed porous Ti6Al4V".
13. **S. Chen**, (2015), "Atomistic simulations", (Principal Advisor Prof. D. Mordehai).
14. **R. Sitton**, (2014), "Measuring loads from contact mechanics concepts".
15. **D. Richler**, (Brakim-2015), "Dynamic mechanical behavior of proelastic gels".
16. **N. Tomer**, (Brakim-2014), "Scaling dynamic failure". (Co-advisor Dr. E. Kochavi).
17. **N. Barham**, (2014), "Advanced ceramics" (Co-advisor Prof. W.D. Kaplan).
18. **R. Oiknine**, (2013), "Dynamic behavior of Cu-Zn alloys", *Ecole des Mines de Paris*.
19. **H. Kotler (Choukroun)**, (2013), "Dynamic failure of aluminum alloys". (Co-advisor Dr. L. Levin).
20. **D. Sory**, (2013), "Notch sensitivity of AISI 4340 in dynamic tensile testing", TFE, *ECAM (Belgium)*.

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21. **K. Shemtov-Yona** (2013), "Fatigue of dental implants", (Co-advisor Prof. E. Machtei).
22. **M. Khokhlov**, (2012), "3D reconstruction and segmentation of fracture surfaces from microscope images using a multi-resolution representation". (Principal advisor Prof. A. Fischer).
23. **U. Stauber**, (Brakim-2013), "Mechanical and failure properties of ULTEM".
24. **I. Ptashnik**, (2012), "Dynamic fragmentation". (Principal advisor Prof. D. Durban).
25. **E. Weisel**, (Brakim-2011), "Mechanical properties of advanced magnesium alloys" (Co-advisor res. Prof. D. Schectman).
26. **M. Dolinsky**, (2008), "Energy concepts in dynamic failure". 2009-admitted for direct PhD program.
27. **M. Mergui**, (2010), "Residual stresses in thin films" (Principal advisor Prof. I. Bucher).
28. **A. Belenky**, (2010), "Dynamic fracture properties of transparent alumina". *Recipient of the Barazani Prize.*
29. **M. Shpitzer**, (2009), "Impact resistant ceramic ammunition casing".
30. **E. Ben-David**, (2008), "Dynamic plasticity at the nanoscale", (Principal Advisor Dr. D. Shilo, Co-Advisor Dr. D. Elata).
31. **A. Brill**, (2008), "The influence of hydrostatic pressure on the dynamic failure of PMMA".
32. **A. Regev**, (2008), "Infrared monitoring of dynamic failure in polymers".
33. **D. Samak**, (2006), "Three-dimensional reconstruction and visualization of fracture surfaces", (Principal Advisor Prof. A. Fischer).
34. **E. Hanina**, (2006), "The effect of hydrostatic pressure on dynamic shear failure".
35. **I. Zisso**, (2006), "An investigation into the dynamic deformation and fracture of MAR250 steel".
36. **S. Mizrachi**, (2005), "Infrared sensing of transient temperature changes during dynamic deformation of materials".
37. **H. Saguy (Cohen)**, (2001), "Fatigue crack growth in Weldox alloy", (Co-Advisor Prof. M.P. Weiss).
38. **R. Lazarovitch**, (2001), "Crack identification using electrical non-destructive methods", (Co-Advisor Dr. I. Bucher).
39. **G. Weisbrod**, (1999), "Dynamic fracture toughness of heavy tungsten base alloys".
40. **D. Studny**, (1997), "The application of impact mechanics to destructive disassembly of fasteners", Technion, (Principal Advisor Dr. E. Zussman).
41. **F. Laraba**, (1993) "Comportement à perforation de tubes en acier de transport de fluides", DEA (Masters) Thesis, with Prof. A. Pineau (Principal Advisor, Ecole Nationale Supérieure des Mines de Paris).

M.E. completed (without thesis)

1. **Bat-El Yefa**, (2017), "Cavitation in composite materials".
2. **N. Ish-Shalom**, (2016), "Dynamic behavior of tantalum".
3. **S. Saliba**, (2016), "Random spectrum loading of dental implants".
4. **E. Blumstein**, (2010), "Theory and experimental assessment of digital image correlation"
5. **G. Dvir**, (2009), "Digital image correlation: theory and applications".

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6. **A. Zlatkis**, (2009), “Models for behind the armor debris”.
7. **O. Shor**, (2006), “A survey of constitutive models for polymers and rubbers”.
8. **A. Gersthstein**, (2006), “Comparing estimates of Kc and Kd in sintered carbides using mechanical and microhardness tests”.
9. **S. Cohen**, (2002), “Dynamic collapse of metallic tubes”, M.E. seminar work.
10. **A. Tanenboim**, (2002), “Micromechanical polymeric devices”, M.E. seminar work.
11. **O. Shani**, (2000), “Micromechanical models of fracture”, M.E. seminar work.
12. **M. Katriaru**, (1998), “Thermomechanical aspects of monotonic and cyclic deformation in commercial polymethylmethacrylate”, M.E. seminar work.
13. **A. Cohen**, (1998), “Experimental investigation of thermomechanical couplings in commercial polycarbonate”, M.E. seminar work.
14. **Y. Greif**, (1998), “Nondestructive tests”, M.E. seminar work work.
15. **S. Lev**, (1998), “Thermal stresses and design of pressure vessels”, M.E. seminar work.
16. **R. Bar-Om**, (1997), “Material aspects of jet fragmentation in explosive shaped charges“, M.E. seminar work.
17. **N. Strumtza**, (1997), “Characterization of damage and fracture of sintered carbide tools“, M.E. seminar work.

RESEARCH GRANTS: Total Technion 1995- present: (rounded) **5.311 M\$**

PUBLICATIONS

Theses

- Ph.D. thesis *Deformation, Fatigue and Fracture of Cast Austenitic Manganese Steels. Advisor: Prof. I. Roman.*
- M.Sc. thesis *The Influence of Thermal Treatments on the Microstructure and Mechanical Properties of a Sintered Tungsten-Base Heavy Alloy. Advisor: Prof. I. Roman.*
- B.Sc project *Design and realization of a resonant device for internal friction measurements. Advisors: Profs. S.I. Rokhlin and J. Pelleg.*

Published papers

1. I. Roman and D. Rittel, “Failure analysis of materials systems in aircraft structures”, FORUM, *The International Society of Air Safety Investigators*, **16** (2) (1983), 4-8.
2. D. Rittel, I. Roman and M. Bercovier, “A finite element modelling of embrittlement in composite liquid phase sintered heavy alloys”, *ASME Transactions, Journal of Engineering Materials and Technology*, **108** (1986), 159-162.
3. D. Rittel and I. Roman, “Ductility and precipitation in sintered tungsten alloys”, *Materials Science and Engineering*, **82** (1986), 93-99.
4. D. Rittel and I. Roman, “Plastic dilatancy as a parameter for ductile fracture criterion”, *International Journal of Fracture*, **35** (1987), R61-R64.
5. D. Rittel and G. Faingold, “On the application of metallurgical techniques to forensic sciences”, *Journal of Forensic Sciences*, **33** (1) (1988), 210-216.

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6. D. Rittel and I. Roman, "Tensile fracture of coarse-grained cast austenitic manganese steels", *Metallurgical Transactions*, 19A (1988), 2269-2277.
7. D. Rittel and I. Roman, "Cyclic properties of coarse-grained cast austenitic manganese steels", *International Journal of Fatigue*, 11 (3) (1989), 177-182.
8. D. Rittel and I. Roman, "Tensile deformation of coarse-grained cast austenitic manganese steels", *Materials Science and Engineering*, A110 (1989), 77-87.
9. D. Rittel, "The influence of microstructure on the macroscopic patterns of surface instabilities in metals", *Scripta Metallurgica et Materialia*, 24, (1990), 1759-1764.
10. D. Rittel, R. Aharonov, G. Feigin and I. Roman, "Experimental investigation of surface instabilities in cylindrical tensile metallic specimens", *Acta Metallurgica et Materialia*, 39 No. 4, (1991), 719-724.
11. H.D. Bui, H. Maigre and D. Rittel, "A new approach to the experimental determination of the dynamic stress intensity factor", *International Journal of Solids and Structures*, Vol. 29 No. 23, (1992), 2881-2895.
12. D. Rittel, H. Maigre and H.D. Bui, "A new method for dynamic fracture toughness testing", *Scripta Metallurgica et Materialia*, 26, (1992), 1593-1598.
13. H. Maigre, D. Rittel and H.D. Bui, "Détermination expérimentale de la ténacité dynamique : une nouvelle approche", *Revue du GAMI*, No. 445, (1992), 8-11.
14. H. Maigre and D. Rittel, "Mixed-mode quantification for dynamic fracture initiation: application to the compact compression specimen", *International Journal of Solids and Structures*, Vol. 30 No. 23, (1993), 3233-3244.
15. H. Maigre and D. Rittel, "Dynamic fracture detection using the force-displacement reciprocity: application to the compact compression specimen", *International Journal of Fracture*, Vol. 73 No. 1, (1995), 67-79.
16. D. Rittel and H. Maigre, "An investigation of dynamic crack initiation in PMMA", *Mechanics of Materials*, Vol. 23 No. 3, (1996), 229-239.
17. D. Rittel and H. Maigre, "A study of mixed-mode dynamic crack initiation in PMMA", *Mechanics Research Communications*, Vol. 23, No. 5, (1996), 475-481.
18. D. Rittel, R. Levin and H. Maigre, "On dynamic crack initiation in polycarbonate under mixed-mode loading", *Mechanics Research Communications*, Vol. 24, No. 1, (1997), 57-64.
19. D. Rittel, R. Levin and H. Maigre, "The influence of mode-mixity on dynamic failure mode transitions in polycarbonate", *J. Physique France 7, Colloque C3*, (1997), 861-866.
20. D. Rittel, "Experimental investigation of transient thermoelastic effects in dynamic fracture", *International Journal of Solids and Structures*. Vol. 35 No. 22, (1998), 2959-2973.
21. D. Rittel, "Transient temperature measurement using embedded thermocouples", *Experimental Mechanics*, Vol. 38 No. 2, (1998), 73-79.
22. D. Rittel and R. Levin, "Mode-mixity and dynamic failure mode transitions in polycarbonate", *Mechanics of Materials*, Vol. 30 No. 3, (1998), 197-216.
23. D. Rittel, "The influence of temperature on dynamic failure mode transitions", (1998), *Mechanics of Materials*, Vol. 30 No. 3, 217-227.
24. D. Rittel, "On the conversion of plastic work to heat during high strain rate deformation of glassy polymers", *Mechanics of Materials*, Vol. 31, No. 2, (1999), 131-139.
25. D. Studny, D. Rittel and E. Zussman, "Impact fracture of screws for disassembly", *ASME Transactions, Journal of Manufacturing Science and Engineering*, Vol. 121 No. 1, (1999), 118-126.

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26. Y. Rabin and D. Rittel, "A model for the time response of solid-embedded thermocouples", *Experimental Mechanics*, Vol. 39 No. 1, (1999), 132-136.
27. D. Rittel, "Thermomechanical aspects of dynamic crack initiation", *Intl. Journal of Fracture*, Vol. 99 No. 3, (1999), 201-212.
28. A. Shirizly, D. Rittel, Rubinski, L. and J. Tirosh, "On damage distribution in the upsetting process of sintered porous materials", *Intl. Journal of Fracture*, Vol. 97 No. 1/4, (1999), 55-69.
29. D. Rittel, "Experimental investigation of transient thermoplastic effects in dynamic fracture", *International Journal of Solids and Structures*, Vol. 37 No.21, (2000), 2901-2913.
30. D. Rittel, "An investigation of the heat generated during cyclic loading of two glassy polymers. Part I: experimental", *Mechanics of Materials* (2000), Vol. 32 No. 3, 131-147.
31. D. Rittel and Y. Rabin "An investigation of the heat generated during cyclic loading of two glassy polymers. Part II: thermal analysis", *Mechanics of Materials* (2000), Vol. 32 No. 3, 149-159.
32. Y. Rabin and D. Rittel, "Infrared temperature sensing of mechanically loaded specimens: thermal analysis", (2000), *Experimental Mechanics*, Vol. 40 No. 2, 197-202.
33. G. Weisbrod and D. Rittel, "A method for dynamic fracture toughness determination using short beams", (2000), *Intl. Journal of Fracture*, Vol. 104 No. 1, 91-104.
34. D. Rittel , "A note of the dynamic failure of PMMA", (2000), *Int. Journal of Fracture*, Vol. 106 No. 2, L3-L8.
35. O. Bougaut and D. Rittel, "On crack-tip cooling during dynamic crack initiation", (2001), *International Journal of Solids and Structures*, Vol. 38 No.15, 2517-2532.
36. D. Rittel and G. Weisbrod, "Dynamic fracture of tungsten base heavy alloys", (2001), *Int. Journal of Fracture*, Vol. 112, 87-98.
37. R. Lazarovitch, D. Rittel and I. Bucher, "Experimental crack identification using electrical impedance tomography", (2002), *NDT & E-International*, Vol. 35, 301-316.
38. D. Rittel, S. Lee and G. Ravichandran, "A shear compression specimen for large strain testing", (2002), *Experimental Mechanics*, Vol. 42 No. 1, 58-64.
39. D. Rittel, S. Lee and G. Ravichandran, "Large strain constitutive behavior of OFHC copper over a wide range of strain-rates using the shear compression specimen", (2002), *Mechanics of Materials*, Vol. 34, 627-642.
40. D. Rittel, A. Pineau, J. Clisson and L. Rota, "On testing of Charpy specimens using the one-point bend impact technique", (2002), *Experimental Mechanics*, Vol. 42 No.3, 247-252.
41. D. Rittel, B. Tanguy, A. Pineau and T. Thomas, "Impact fracture of a ferritic steel in the lower shelf regime", (2002), *Intl. Journal of Fracture*, Vol. 117, 101-112.
42. M. Ichihara, D. Rittel and B. Sturtevant, "Fragmentation of a porous viscoelastic material: implications to magma fragmentation", (2002), *J. Geophys. Research. v. Solid Earth*, V 106 No. B10, 2226-2239.
43. D. Rittel, N. Eliash and J.L. Halary, "Hysteretic heating of modified poly(methylmethacrylate)", (2003), *Polymer*, Vol. 44/9, 2817-2822.
44. E. Zussman, D. Rittel and A.L. Yarin, "Failure modes of electrospun nanofibers", (2003), *Applied Physics Letters*, Vol. 82 No. 22, 3958-3960.

45. A. Benatar, D. Rittel and A.L. Yarin, "Theoretical and experimental analysis of longitudinal wave propagation in cylindrical viscoelastic rods", (2003), *J. Mech. Phys. Solids*, Vol 51/8, 1413 - 1431.
46. M. Vural and D. Rittel, "An educational visualization technique for Kolsky (split Hopkinson) bar, (2003), *Experimental Techniques*, Nov-Dec 2003, 35-39.
47. M. Vural, D. Rittel and G. Ravichandran, "Large strain mechanical behavior of 1018 cold rolled steel over a wide range of strain rates, (2003), *Metallurgical and Material Transactions A*, 34A (12), 2873-2885.
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Book Chapters

1. D. Rittel, "Dynamic testing of materials: Selected topics", in *Constitutive relations under Impact Loadings*, Eds. T. Lodygowski and A. Rusinek, Springer (2013).
2. D. Rittel, "Dynamic shear failure of materials", in *Dynamic Failure of Materials and Structures*, Eds. A. Shukla, G. Ravichandran and D.S. Rajapakse, Springer (2010).

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3. D. Rittel, "Dynamic crack initiation toughness", in *Dynamic Fracture Mechanics*, Ed. A. Shukla, World Scientific, (2006).
4. D. Rittel, "Dynamic fracture experiments using point impact", *Recent Advances in Experimental Mechanics*, Ed. EE. Gdoutos, Kluwer Academic Publishers, (2002), 267-274.
5. D. Rittel, "Experiments in dynamic fracture", *Physical Aspects of Fracture*, Ed. E. Bouchaud, Kluwer Acad., (2001), 343-352.
6. D. Rittel, "Thermomechanical couplings and fracture of amorphous polymers", *Fracture of Polymers, Composites and Adhesives*, Ed. JG. Williams and A. Pavan, Elsevier, (2000), 375-382.
7. D. Rittel, "Experimental investigation of dynamic failure mode transitions", *Non-Linear Singularities in Deformation and Flow*, Ed. D. Durban and JRA. Pearson, Kluwer Acad., (1997), 181-192.
8. D. Rittel and H. Maigre, "A new approach to dynamic fracture toughness testing", *Novel Experimental techniques in Fracture Mechanics*, Ed. A. Shukla, ASME-AMD Vol. 176, (1993), 173-184.

Patents

1. "Inverse-freezing compositions and use thereof", with G. Parvari, Y. Rotbaum and Y. Eichen, Israel Patent Application **No. 252660**, June 4, 2017
2. "Polyurea coating of surfaces for leak protection", with N. Drimer and B. Danino, US Provisional Patent Application **No. 62/429,818**, Dec. 5, 2016
3. "System for monitoring health of structural joints", with Dr. B. Karp and Prof. D. Durban. US Patent No. **8,596,135**, Dec. 3, 2013.
4. "Electrical tomography of hidden flaws in conductors using the alternating current potential drop technique (ACPD)", with H. Saguy. US Patent No. **7519487 B2**, Apr. 14, 2009.

CONFERENCES

Plenary

1. **BSSM 2018**, Aug. 29-31, Southampton, UK. "*The engineering perspective on dynamic shear localization*".
2. **ATTOI 2017**, 1st International Conference on Advanced Technologies and Techniques in Oral Implantology, May 22-24, Tel-Aviv, Israel. "*Physical communication: The bone-implant interface*".
3. **LWAG 2016**, Grenoble, France, "*Adiabatic shear across the scales- The engineer's perspective*".
4. **Solmech 2014**, Zakopane, Poland, R. Zaera, J.A. Rodríguez-Martínez, G. Vaddillo, J. Fernández-Sáez, D. Rittel, A. Rusinek, R. Pesci, S. Osovski, T. Cohen, "*Deformation of Dynamically Phase Transforming Metals in Adiabatic Conditions: Thermal Effects and Instabilities*".
5. **Security and Terror**, Technion, 2011, "*Challenges and innovations in ballistic armor*".
6. **Photomechanics, Brussels**, 2011, "*Some applications of infrared sensing in mechanics of materials*". Opening address.
7. **7th International Symposium on Impact Engineering**, Warsaw, 2010, "*On some issues in dynamic failure of materials*". Opening address.

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8. **Dynamic Behavior of Materials**, in memoriam J.R. Klepaczcko, Metz, France, May 2009, “*A different viewpoint on adiabatic shear failure*”. Opening address.

Keynote

1. Plasticity 2019, Panama, Jan. 3-9 2019, “*Some results on the mechanics of inverse-freezing hydrogels*”.
2. Plasticity 2018, Puerto-Rico, Jan. 3-8 2018, “*The mechanics and physics of adiabatic shear failure*”.
3. Cermodel, Trento, July 1-3 2015, “*Some experiments on the dynamic failure of ceramics*”. Opening address.
4. Third International Workshop on Physics Based Material Models and Experimental Observations, Izmir, June 2014, “*The role of microstructure in dynamic shear localization*”.
5. Dymat, Strasbourg, December 2010, “*High-rate thermomechanical properties of glassy polymers*”. Opening address.
6. LWAG 2010, Madrid, November 2010, “*Modeling dynamic shear failure from energy considerations*”. Opening address.
7. Materiaux 2010, Nantes, October 2010, “*Microstructural aspects of dynamic shear localization*”. Opening address
8. 3d Israel Conference on Failure Analysis and Non-Destructive Testing, Tel Aviv, April 2006, “*Dynamic mechanical failure: adiabatic shear banding*”.
9. Israel Materials Engineering Conference IMEC06, Beersheba, Israel, March 2006, “*Dynamic mechanical properties: modern trends*”.
10. Intl. Conference on Computational Experimental Engineering and Sciences ICCES'05, Chennai, India, Dec. 2005, “*Experimental investigation of adiabatic shear failure*”.
11. Intl. Conference on Computational Experimental Engineering and Sciences ICCES'05, Chennai, India, Dec. 2005, “*Dynamic deformation of alpha iron under shear dominant conditions*” (with G. Ravichandran).
12. The 14th US National Congress on Theoretical and Applied Mechanics (UNSCTAM14), Blacksburg VA, June 2002, “*Some experimental aspects of dynamic fracture mechanics*”.
13. The 10th International Conference on Fracture, ICF10, Hawaii, December 2001. “*Transient thermomechanical effects in dynamic fracture*”.
14. NATO Advanced Study Institute on Physical Aspects of Fracture, Cargèse (Corsica), June 2000. “*Experiments in dynamic fracture*”.
15. The 7th Israel Materials Engineering Conference, Haifa, June 1994. “*Dynamic crack initiation in brittle solids*”.

Invited (partial list)

1. EUROMECH Symposium on Micromechanics of Defects, Seville, Spain, June 2018, “*The mechanics and physics of dynamic shear localization*”.
2. SEM 2018, Greenville, SC, June 2018, “*Measuring the Taylor-Quinney coefficient*”.
3. IUTAM Symposium on Dynamic Instabilities in Solids, Madrid, May 2016, “*Adiabatic shear failure from micro to macro*”.
4. MRS Annual Meeting, Boston, November 2013, “*Microstructural aspects of dynamic shear localization*” (with S. Osovski, A. Venkert and P. Landau).

5. IUTAM Symposium on Materials and Interfaces under High Strain rates and large Deformations, Metz, June 2013, "*On the onset of adiabatic shear failure*" (with S. Osovski, A. Venkert and P. Landau).
6. IUTAM Symposium on Recent Development of Experimental Techniques Under Impact Loading, Xi'an, May 2013, "*On the dynamically stored energy of cold work in pure single and polycrystalline copper*" (with A. Kiddane, M. Alkhader, G. Ravichandran, A. Venkert and P. Landau).
7. 10th International DYMAT Conference, Freiburg, Sept. 2012, "*On the Non-Adiabatic Nature of Adiabatic Shear Bands*" (with S. Osovski, A. Venkert and P. Landau).
8. IUTAM Symposium on Fracture in Nature and Technology, Brescia, July 2012, "*The causes for adiabatic shear failure: Microstructural, thermal or both?*" (with S. Osovski, A. Venkert and P. Landau).
9. SEM XII International Congress & Exposition on Experimental & Applied Mechanics, Costa Mesa, June 2012, "*Is adiabatic shear failure really adiabatic?*" (with S. Osovski, A. Venkert and P. Landau).
10. IUTAM Symposium on Dynamic Fracture and Fragmentation, Austin TX, March 2009, "*Revisiting adiabatic shear failure*".
11. ISTAM 2007 annual Meeting, Tel Aviv, December 2007, "*Dynamic flow and failure of confined polymethylmethacrylate*" (with A. Brill)
12. Strategy for promoting researches on volcanic explosion, Kobe, Japan, January 2005, "*Experimental characterization of the dynamic and mechanical and fracture properties of materials*".
13. The Annual Israel Conference on Failure Analysis, Herzlyia, October 2004, "*Dynamic failure mechanics*".
14. Multi-disciplinary Monitoring, Modeling and Forecasting of Volcanic Hazard, Elat, January 2004, "*Experimental characterization of the dynamic mechanical and fracture properties of materials*".
15. Rafael Worksop on Ballistic Performance of Ceramic Materials, Haifa, December 2003, "*Dynamic mechanical and fracture properties of TiC-1080 steel cermets*".
16. Ringberg Worksop on Dynamic Fracture, Ringberg Castle, Germany, July 2003, "*Some experimental aspects of dynamic crack initiation*".
17. MECAMAT Workshop on Rupture dynamique vs. rupture incrémentale, Paris December 2000. "*Rupture dynamique expérimentale, couplage thermomécanique application aux interfaces*".
18. IACM Annual Meeting, Tel Aviv, March 2001. "*Dynamic fracture of short beam specimens*"
19. IUTAM Symposium. Non-linear singularities in Deformation and Flow, Haifa 1997. "*Experimental investigation of dynamic failure mode transitions*".
20. Euromech 326 Colloquium Experiment and Macroscopic Theory in Crack Propagation, Kielce, Poland, 1994, "Dynamic crack initiation experiments with the compact compression specimen technique".
21. Euromech 306 Colloquium Mechanics of Contact Impact, Prague, 1993, "Dynamic fracture toughness determination using the CCS technique".
22. Euromech 282 Colloquium Microscopic and Macroscopic Plastic Deformation Instabilities, Metz, France, 1991. "Experimental aspects of surface deformation of metals".

Participation in organizing conferences

Chair or Co-Chair

- 2019 **Co-Chair**, EUROMECH Colloquium 605 on **Damage and Failure of Engineering Materials under Extreme Conditions**, 2019, May – 24 May 2019, Madrid, Spain
- 2016 **Co-Chair**, IUTAM Symposium on **Dynamic Instabilities in Solids**”, 2016, 17-20 May, Madrid, Spain.
- 2011 **Co-Chair**, LWAG 2011 **New concepts in armor engineering**, Technion 16-17 March, Haifa, Israel.
- 2003 **Co-Chair** of the “**Ringberg Workshop on Dynamic Fracture**”, Ringberg Castle, Germany, July 2003.
- 2003 **Co-Chair** and *Secretary* of the “**9th International Conference on the Mechanical Behaviour of Materials**”, ICM9, Geneva, May 2003.
- 1998 **Co-Chair** of the “**First Israel-France Bi-National Workshop on Failure of Materials**”, Kiryat Anavim, May 11-12, 1998.

Organizing or Scientific Committee

- 2021 International Advisory Committee, **International Conference on Fracture ICF 15**, June 13-18, Atlanta, USA
- 2020 Scientific Committee, **ICDS Photomechanics**, 19-22 October 2020, Nantes, France.
- 2020 International Scientific Committee, **19th International conference on Experimental Mechanics** – ICEM 19, July 5-9, Krakow, Poland.
- 2020 Scientific Advisory Board, **Theoretical, Applied and Experimental Mechanics,” (ICTAEM_3)**, June 14-17, Athens, Greece.
- 2020 **15th International Conference on Advances in Experimental Mechanics**, 8-10 September, 2020, University of Oxford, UK.
- 2020 International Scientific Committee, **International Conference on Defence Technology**, April 20-24, Nanjing, China
- 2019 International Scientific Committee, “**Dynamat 2019**”, Apr. 17-19, Nicosia, Cyprus.
- 2019 International Scientific Committee, “**Plasticity, Damage and Fracture**”, Aug. 22-23, Ankara, Turkey.
- 2019 International Scientific Committee, **BSSM 14th International Conference on Experimental Mechanics**, September 10-12, Belfast, UK.
- 2018 International Scientific Committee, **BSSM13th International Conference on Experimental Mechanics**, August 29-31, Southampton, UK.
- 2018 International Scientific Committee, **Photomechanics 2018**, March 20-22, 2018, Toulouse, France.
- 2017 XXVII International Conference on **Mathematical and Computer Simulation in Mechanics of Solids and Structures: Fundamentals of static and dynamic fracture**, Sept 25-27, Saint Petersburg, Russia.
- 2017 Scientific Committee, **ICF 14 International Conference on Fracture**, June 18-23, Rhodes, Greece.

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- 2017 International Scientific Committee, **1st International Conference on Advanced Technologies and Techniques in Oral Implantology (ATTOI)**, May 22-24, Tel-Aviv, Israel.
- 2016 International Scientific Committee, **2016 EMI (Engineering Mechanics Institute)**, Oct. 25-27, Metz, France.
- 2016 Scientific Committee, **BSSM's 11th International Conference on Advances in Experimental Mechanics**, Sept. 5-7, University of Exeter, UK.
- 2016 Scientific Committee, **22nd Dymat Technical Meeting**, Oct. 19-21, Grenoble, France.
- 2016 Scientific Committee, **17th International Conference on Experimental Mechanics**, 2016, 3-7 July, Rhodes, Greece.
- 2015 Co-Chair, **Under Extreme Conditions**, 2015, Nov 25, Technion.
- 2015 Scientific Committee, **10th International Conference on Advances in Experimental Mechanics**, 2015, 1-3 September, Edimburgh, UK.
- 2015 Scientific Committee, **CERMODEL 2015**, 1-3 July, Trento, Italy.
- 2014 International Academic Committee, **SEM Fall Meeting Conference**, 2014, 21-24 September, Beijing, China
- 2014 Scientific Committee, **16th International Conference on Experimental Mechanics**, 2014, 7-11 July, Cambridge, UK.
- 2014 Scientific Committee, **4th International Conference on Impact loading of lightweight structures**, 2014, January 12-16, Capetown, SA.
- 2013 International Scientific Committee, **Dynamic deformation and fracture of advanced materials – D2FAM**, 2013, Sept. 9-11, Loughborough, UK.
- 2013 Scientific Committee, **IOP/DYMAT 21st Technical Meeting - High speed imaging for dynamic testing of materials and structures**, Nov. 18-20, London, UK.
- 2013 International Advisory Committee, **8th Intl. Symposium on Impact Engineering** 2013, Sept 2-6, Osaka, Japan.
- 2013 Scientific Committee, **Photomechanics 2013**, May 27-29, Montpellier, France.
- 2013 International Advisory Board of the Workshop on **“Processing-Microstructure-Property Relationships & Deformation Mechanisms of Magnesium Alloys”**, Madrid, May 21-24.
- 2013 Scientific Committee, **IUTAM symposium "Recent developments in impact testing of materials and structures"**, 2013, Xian, China.
- 2013 Scientific Committee, **IUTAM symposium "Materials and interfaces under high strain rate and large deformation"**, 2013, Metz, France.
- 2012 Scientific Committee, **LWAG 2012 “Opportunities and Challenges of Lightweight Armour: failure mechanisms, materials, experiments and modelling”**, 25-26 October, Canobbio, Switzerland.
- 2012 Scientific Committee, **"Sixth international symposium on dynamic behavior of materials and safety of structures" deformation**, 2012, Poznan, Poland.
- 2012 International Advisory Committee, **DYMAT 2012**, Freiburg, Germany.
- 2011 Scientific Committee, **3^d Intl. Conference on Impact loading of lightweight structures**, June 28-July 1, Valenciennes, France.
- 2011 Scientific Committee, **2011 Annual International Workshop on Dynamic Behavior of Structures and Materials, Interaction and Friction**, Metz, France.
- 2011 Scientific Committee, **LWAG 2011 New design concepts in lightweight armour for vehicles**, 27-28 October, Aveiro, Portugal.
- 2011 Scientific Committee, **IUTAM symposium "Full Field Measurements and Identification in Solid Mechanics "**, July 3-8, 2011, Cachan, France.

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- 2010 Scientific Committee, LWAG 2010 Meeting "**Failure and damage mechanisms of armour materials**", Nov 26, 2010, Madrid, Spain.
- 2009 International Scientific Advisory Committee, **DYMAT 2009**, Brussels, Belgium
- 2009 Scientific Committee, **Dynamic Behavior of Materials**, in memoriam J.R. Klepaczko, Metz, France
- 2009 Section organizer, **Euromech Solid Mechanics Conference**, Portugal
- 2009 Scientific Committee, **9th Meeting, Lightweight Armor Group**, Portugal
- 2008 **Track Leader**, with G. Ravichandran, Advanced Materials, ASME-ESDA 2008, Haifa, July 2008.
- 1992 Secretary, Euromech 297 Colloquium, "**Fatigue Analysis in the Context of Mechanical Design**", Lozari (Corsica), 1992.