

Curriculum Vitae

Rachman Chaim

Date of Birth: 1953

Marital status: Married + 2

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ACADEMIC DEGREES

- | | |
|-----------|---|
| June 1979 | B.Sc. in Materials Engineering
Ben-Gurion University of the Negev, Beer-Sheva, Israel. |
| June 1981 | M.Sc. in Materials Engineering
Ben-Gurion University of the Negev, Beer-Sheva, Israel. |
| June 1984 | D.Sc. in Materials Engineering
Technion-Israel Institute of Technology, Haifa, Israel. |

ACADEMIC APPOINTMENTS

Technion

October 2021 - Retired

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| 1999-2021 | Associate Professor | Dept. of Materials Engineering
Technion-Israel Institute of Technology |
| 1991 | Senior Lecturer | Dept. of Materials Engineering
Technion-Israel Institute of Technology |
| 1987 | Lecturer | Dept. of Materials Engineering,
Technion-Israel Institute of Technology |
| 1986-87 | Research Associate | Dept. of Materials Engineering,
Technion-Israel Institute of Technology |
| 1981-84 | Instructor | Dept. of Materials Engineering,
Technion-Israel Institute of Technology |

Other Universities

2017	Visiting Scientist (April-Sept.)	Institute CARNOT, CIRIMAT Paul Sabatier University, Toulouse, France
2001-02	Visiting Scientist	Division of Materials Sciences Lawrence Berkeley National Laboratory University of California at Berkeley, CA, USA
1995-96	Visiting Scientist	Dept. of Materials Science & Engineering Lehigh University, PA, USA
1984-86	Research Associate	Dept. of Metallurgy & Materials Science Case Western Reserve Univ., USA
1979-81	Research Assistant	Dept. of Materials Engineering, Ben-Gurion University of the Negev

RESEARCH INTERESTS

The interrelations between microstructure and physical/mechanical/optical properties in nano-structured ceramics; synthesis and densification of nanocrystalline ceramics; optical transparent ceramics; ceramic coatings; composite and nano-composite ceramics; phase transformations in ceramics; electron microscopy of ceramics.

TEACHING EXPERIENCE

Graduate

- 1."Science of Ceramics".
- 2."Failure Analysis".
- 3."Theory of Plastic Deformation".

Undergraduate

- 1."Introduction to Materials Engineering".
- 2."Ceramic Materials and Refractories".
- 3."Structural Ceramic Materials".
- 4."Fabrication Processes for Ceramic Materials".
- 4."Non-destructive Testing".
- 5."Characterization techniques of materials composition and microstructure".

TECHNION ACTIVITIES

Faculty duties

1994-95, 97-2001, 2005, 2010-11 Coordinator of the undergraduate studies
 1995-97 Co-organizer of the Materials Eng.-Chemistry undergraduate program.

Technion duties

1996-2000 Member of the Technion committee for the course "Introduction to Engineering" at Israel high schools
 1994-95/98-2000 Member of the board of the directors of the Israel Ceramics and Silicate Institute (representing Technion)
 2008-11

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Member of the American Ceramic Society (ACerS)
 Member of the European Ceramic Society (ECerS)
 Member of the Minerals, Metals & Materials Society (TMS)
 Member of the Israel Materials and Processes Society (IMPS)
 Member of the Israel Society for Microscopy (ISM)

HONORS

1993 H. Gutwirth Research Prize
 1987 Bergmann Memorial Research Grant (BSF)
 1984 Landau Research Award in Materials Engineering

GRADUATE STUDENTS

Completed Theses

1988	Noam Burstin	M.Sc. (project)	R. Chaim (first supervisor-the late Prof. S. Nativ)
1990	Eliezer Iskevitch	M.Sc. Thesis	R. Chaim
1991	Eli Cohen	M.Sc. Thesis	R. Chaim
1991	Iris Silberman	M.Sc. Thesis	R. Chaim/Leah Gal-Or
1992	Yosef Ezer	M.Sc. Thesis	R. Chaim
1993	Gabi Stark	M.Sc. Thesis	R. Chaim/Leah Gal-Or
1994	Igor Levin	M.Sc. Thesis	D. G. Brandon/R. Chaim
1995	Silvi Almaleh-Rockman	M.Sc. Thesis	R. Chaim
1995	Olga Glozman	M.Sc. Thesis	D.G. Brandon/R. Chaim
1995	Alexander Kats-Demyanets	M.Sc. Thesis	R. Chaim
1995	Meir Hefetz	M.Sc. Thesis	R. Chaim
1999	Miri Moskovits	M.Sc. Thesis	R. Chaim

2003	David Ehre	M. Sc. Thesis	R. Chaim
2003	Yaron Kauffmann	M. Sc. Thesis	R. Chaim/W. D. Kaplan
2003	Anton Raul Twersky	M. Sc. Thesis	R. Chaim
2006	Ziv Keren	M. Sc. Thesis	R. Chaim
2008	Amit Shlayer	M. Sc. Thesis	R. Chaim
2010	Rachel Marder	M. Sc. Thesis	R. Chaim
2015	Rachel Marder	Ph. D. Thesis	R. Chaim

Supervised Post Doctoral Fellows

1992-94	Dr. I. Levi
1997-98	Dr. B. G. Ravi
1999-00	Dr. R. Ramamoorthy
2000-01	Dr. S. K. Saha

RESEARCH GRANTS

<u>Year</u>	<u>Agency</u>	<u>Amount</u>	<u>PI</u>
1986/87	Ministry of Defense	75,000 IS	D.G. Brandon
1987/88	Ministry of Commerce & Industry	40,000 IS	R. Chaim
1988/91	US-Israel BSF	125,000 US\$	R. Chaim
1990/91& 1993/95	BMFT-KFA	338,000 DM	R. Chaim
1992	Israel Petrol Refineries Ltd	32,000 US\$	R. Chaim
1993/94	Isramco Ltd	240,000 US\$	R. Chaim
1993/95	Ministry of Science	69,000 IS	R. Chaim
1995/97	AFIRST (France-Israel)	52,900 US\$	R. Chaim/D. Sherman
1996/98	Ministry of Science (Infrastructure projects)	500,000 IS (per year)	A. Gedanken / R. Chaim/ / B. Cina
1998/2002	Ministry of Science (Infrastructure projects)	709,000 IS (per year)	R. Chaim / A. Goldstein / / I. Eldror
2004-2005	Ministry of Defense, Rafael	150,000 IS	R. Chaim / W. D. Kaplan
2006-2012	Ministry of Defense	270,000 IS (per year)	R. Chaim
2006-2007	Ministry of Defense, El-Op	150,000 IS	R. Chaim / Y. Ein-Eli
2007-2010	Ministry of Science	800,000 IS	N. Frage/R.Chaim/E. Zaretsky

SIGNIFICANT PROFESSIONAL PROJECTS

<u>Year</u>	<u>Project title</u>	<u>Institution</u>	<u>Project Managers</u>
1984-1986	Ceramic Fibers	Case Western Reserve Univ.	A. H. Heuer
1986-1988	Ceramic Composites	Technion	D.G. Brandon/R. Chaim
1986-1988	Ceramic Superconductors	Technion	R. Chaim
1990-1995	Ceramic Coatings	Technion	R. Chaim/L. Gal-Or

1995/1996	Graded Ceramic Coatings	Lehigh Univ.	A. R. Marder/K. Barmak
1991-present	Nanostructured Ceramics	Technion	R. Chaim
1991-present	Superplasticity in Nanostructured Ceramics	Technion	R. Chaim
2002-present	Spark Plasma Sintering (SPS) & Flash Sintering of Nanostructured Ceramics	Technion	R. Chaim
2002-present	Transparent & Optical Ceramics	Technion	R. Chaim

PUBLICATIONS

Theses

B. Sc. Thesis: Correlation between the Acoustic Emission and the Grain-size during the Plastic Deformation of FCC Metals.

M. Sc. Thesis: Kinetics of Precipitation Hardening in Cu- rich Cu-Mg Alloys.

D. Sc. Thesis: Instability of the Phases in the Partially Stabilized Zirconias.

Refereed papers in professional journals

Published papers

1. R. Chaim and D.G. Brandon," Microstructure Evolution and Ordering in Commercial Mg-PSZ", J. Mater. Sci. **19** (9) 2934-42 (1984).
2. R. Chaim, M. Ruhle and A.H. Heuer," Microstructural Evolution in a ZrO₂-12 wt% Y₂O₃ Ceramic", J. Am. Ceram. Soc. **68** (8) 427-31 (1985).
3. R. Chaim, A.H. Heuer and D.G. Brandon," Phase Equilibration in ZrO₂-Y₂O₃ Alloys by Liquid Film Migration", J. Am. Ceram. Soc. **69** (3) 243-48 (1986).
4. R. Chaim, D.G. Brandon and A.H. Heuer, "A Diffusional Phase Transformation in ZrO₂-4 wt% Y₂O₃ Induced by Surface Segregation", Acta Metall. **34** (10) 1933-39 (1986).
5. V. Lanteri, R. Chaim and A.H. Heuer, "On the Microstructure Resulting from the Diffusionless Cubic - Tetragonal Transformation in ZrO₂-Y₂O₃ Alloys", J. Am. Ceram. Soc. **69** (10) C-258-C-261 (1986).
6. A.H. Heuer, R. Chaim and V. Lanteri, "The Displacive Cubic-Tetragonal Transformation in ZrO₂ Alloys", Acta Metall. **35** (3) 661-66 (1987).
7. R. Chaim and A.H. Heuer, "The Interface between (Nicalon) SiC Fibers and a Glass-Ceramic Matrix", Adv. Ceramic Mater. **2** (2) 154-58 (1987).
8. A.H. Heuer, V. Lanteri and R. Chaim, "HREM of Coherent Precipitates in ZrO₂ Alloys", Ultramicroscopy **22**, 27-34 (1987).

9. R. Chaim, J. Pelleg and M. Talianker, "TEM Observation of a Cu-Mg Age-hardenable Alloy", J. Mater. Sci. **22** (5) 1609-12 (1987).
10. P. Pirouz, R. Chaim and J. Samuels, "A High Resolution Electron Microscopy Investigation of Indentation-Induced Phase Transformation of Silicon", Bull. Russian Academ. Sci. **51** (4) 753-62 (1987).
11. R. Chaim, A.H. Heuer and R.T. Chen, "Microstructural and Microchemical Characterization of Silicon Carbide and Silicon Carbonitride Ceramic Fibers Produced from polymer Precursors", J. Am. Ceram. Soc. **71** (11) 960-69 (1988).
12. H. Bestgen, R. Chaim and A.H. Heuer, "Thin-Foil Phase Transformation of Tetragonal ZrO₂ in a ZrO₂- 8wt% Y₂O₃ Alloy", J. Am. Ceram. Soc. **71** (10) 826-31 (1988).
13. R. Chaim, D.G. Brandon and L. Baum, "Mechanical Properties and Microstructural Characterization of SiC-Fiber Reinforced Cordierite Glass-Ceramic", Ceram. Eng. Sci. Proc. **9** (7-8) 695-704 (1988).
14. A.H. Heuer, V. Lanteri, S.C. Farmer, R. Chaim, R. -R. Lee, B.W. Kibble and R.M. Dickerson, "On the Orthorhombic Phase in ZrO₂-based Alloys", J. Mater. Sci. **24** (1) 124-32 (1989).
15. R. Chaim, L. Baum and D.G. Brandon, "Mechanical Properties and Microstructure of Whisker-reinforced Al₂O₃/30 vol% Glass Matrix Composites", J. Am. Ceram. Soc. **72** (9) 1636-42 (1989).
16. P. Pirouz, R. Chaim, U. Dahmen and K.H. Westmacott, "The Martensitic Transformation in Silicon -I. Experimental Observations", Acta Metall. Mater. **38** (2) 313-22 (1990).
17. U. Dahmen, K.H. Westmacott, P. Pirouz and R. Chaim, "The Martensitic Transformation in Silicon -II. Crystallographic Analysis", Acta Metall. Mater. **38** (2) 323-28 (1990).
18. P. Pirouz, U. Dahmen, K.H. Westmacott and R. Chaim, "The Martensitic Transformation in Silicon - III. Comparison with other Work", Acta Metall. Mater. **38** (2) 329-36 (1990).
19. E. Iskevitch and R. Chaim, "Stress-Corrosion Cracking in YBa₂Cu₃O_{7-x} Ceramic Superconductor", Phil. Mag. Lett. **61** (4) 209-15 (1990).
20. R. Chaim, A.H. Heuer and V. Aronov, "Surface Microstructure Changes on Laser-Treatment of MgO-Partially Stabilized Zirconia", J. Am. Ceram. Soc. **73**(6) 1519-23 (1990).
21. R. Chaim, "Microstructure and Stability of Ceramic Fibers Used for Composite Materials", High Temp. Mater. & Process. **9** (1) 7-15 (1990).
22. R. Chaim and A.H. Heuer, "Carbon Interfacial Layers Formed by Oxidation of SiC in SiC/Cordierite Glass-Ceramic Reaction Couples", J. Am. Ceram. Soc. **74** (7) 1663-67 (1991).

23. L. Gal-Or, I. Silberman and R. Chaim, "Electrolytic ZrO₂ Coatings: I. Electrochemical Aspects", J. Electrochem. Soc. **138** (7) 1939-42 (1991).
24. R. Chaim, I. Silberman and L. Gal-Or, "Electrolytic ZrO₂ Coatings: II. Microstructural Aspects", J. Electrochem. Soc. **138** (7) 1942-46 (1991).
25. R. Chaim, "Microstructure and Bending Strength of Ternary (CaO-MgO) Partially Stabilized ZrO₂", J. Am. Ceram. Soc. **75** (3) 694-99 (1992).
26. R. Chaim and A.H. Heuer, "Crystallization in a Barium-Containing Magnesium Alumino-silicate Glass-Ceramic", J. Am. Ceram. Soc. **75** (6) 1512-21 (1992).
27. R. Chaim, "Pressureless Sintered ATZ and ZTA Ceramic Composites", J. Mater. Sci. **27** (10) 5597-5602 (1992).
28. R. Chaim, "Fabrication and Characterization of Nanocrystalline Oxides by Crystallization of Amorphous Precursors", NanoStructured Mater. **1** (6) 479-489 (1992).
29. R. Chaim and Y. Ezer, "Fabrication and Characterization of YBa₂Cu₃O_{7-x} / Sn Composite Superconductors I. Microstructure and Mechanical Properties", J. Mater. Sci. **28**, 4205-211 (1993).
30. R. Chaim and Y. Ezer, "Fabrication and Characterization of YBa₂Cu₃O_{7-x} / Sn Composite Superconductors III Sintering at High Temperature", J. Mater. Sci. **28** (16) 4273-78 (1993).
31. R. Chaim and Y. Ezer, "Fabrication and Characterization of YBa₂Cu₃O_{7-x} / Sn Superconductors II. Electrical Properties", J. Mater. Sci. **28** (18) 5007-5009 (1993).
32. R. Chaim and H. Marom, "Particle Size Effect on the Apparent Brittle-Ductile Transition in YBa₂Cu₃O_{7-x} / Sn Composite Superconductor", J. Mater. Sci. Lett. **12**, 1563-66 (1993).
33. E. Lifshitz, M. Yassen, L. Bykov, I. Dag, and R. Chaim, "Nanometer-Size Particles of PbI₂ Embedded in SiO₂ Films", J. Phys. Chem. **98** (5) 1459-63 (1994).
34. R. Chaim, G. Stark, L. Gal-Or and H. Bestgen, "Electrochemical Al₂O₃ Coatings on TiB₂ and TiC Substrates", J. Mater. Sci. Lett. **13**, 487-90 (1994).
35. R. Chaim, G. Stark, L. Gal-Or and H. Bestgen, "Electrochemical ZrO₂ and Al₂O₃ Coatings on SiC Substrates ", J. Mater. Sci. **29** (12) 6241-48 (1994).
36. R. Chaim, S. Almaleh-Rockman, L. Gal-Or and H. Bestgen, "Electrochemical Cr₂O₃ Coatings on Non-Oxide Ceramic Substrates", J. Am. Ceram. Soc. **77** (12) 3202-208 (1994).
37. E. Lifshitz, M. Yassen, L. Bykov, I. Dag, and R. Chaim, "Photodecomposition and Regeneration of PbI₂ Nanometer-Sized Particles, Embedded in Porous Silica Films", J. Phys. Chem. **99** (4) 1245-50 (1995).
38. R. Chaim and V. Talanker, "Microstructure and Mechanical Properties of SiC Platelet/

- Cordierite Glass-Ceramic Composites", J. Am. Ceram. Soc. **78** (1) 166-72 (1995).
39. A. Kats-Demyanets and R. Chaim, "Grain Growth Control in Nanocrystalline Oxide Ceramics", NanoStructured Mater. **6**, 851-54 (1995).
 40. T. Aboud, B. -Z. Weiss, and R. Chaim, "Mechanical Alloying of the Immiscible Binary System W-Cu", NanoStructured Mater. **6**, 405-408 (1995).
 41. R. Chaim, A. Munoz, H. Miranda and A. Dominguez-Rodriguez, "High-Temperature Deformation of Cordierite Glass-Ceramic/SiC Platelet Composites", J. Mater. Sci. **31**, 3887-91 (1996).
 42. R. Chaim, I. Zhitomirsky, L. Gal-Or and H. Bestgen, "Electrochemical $\text{Al}_2\text{O}_3\text{-ZrO}_2$ Composite Coatings on Non-Oxide Ceramic substrates", J. Mater. Sci. **32** (1) 389-400 (1997).
 43. R. Chaim, "Percolative Composite Model for Prediction of the Properties of Nanocrystalline Materials", J. Mater. Res. **12** (7) 1828-36 (1997).
 44. I. Zhitomirsky, R. Chaim, L. Gal-Or and H. Bestgen, "Electrochemical $\text{Al}_2\text{O}_3\text{-Cr}_2\text{O}_3$ Coatings on Non-Oxide Ceramic Substrates", J. Mater. Sci. **32** (19) 5205-213 (1997).
 45. L. Chen, T. Rouxel, R. Chaim, H. Vesteghem and D. Sherman, "Superplasticity and Creep in Monoclinic and Y-PSZ Nano-Grained Zirconia", Mater. Sci. Forum **243-245**, 245-50 (1997).
 46. R. Chaim, G. Basat, and A. Kats-Demyanets, "Effect of Oxides Additives on Sintering and Grain Growth of Nanocrystalline Zirconia Alloys", Mater. Lett. **35** (3-4) 245-250 (1998).
 47. R. Chaim and M. Hefetz, "Fabrication of dense nanocrystalline ZrO_2 - 3 wt% Y_2O_3 by hot-isostatic pressing", J. Mater. Res. **13** (7) 1875-1880 (1998).
 48. G. Hare'l, B. G. Ravi and R. Chaim, "Effects of solvent and agitation on microstructural characteristics of the sol-gel derived nanocrystalline Y-TZP powders", Mater. Lett. **39** (1) 63-68 (1999).
 49. R. Chaim, "Plastic deformation in impure nanocrystalline ceramics", J. Mater. Res. **14** (6) 2508-17 (1999).
 50. M. Moskovits, B. G. Ravi and R. Chaim, "Sintering of bimodal ZrO_2 - 4 wt% Y_2O_3 powder mixtures with a nanocrystalline component", NanoStructured Mater. **11** (2) 179-85 (1999).
 51. F. Gutierrez-Mora, A. Dominguez-Rodriguez, J. L. Routbort, R. Chaim, and F. Guiberteau, "Joining of Yttria-Tetragonal Stabilized Zirconia Polycrystals Using Nanocrystals", Scripta Mater. **41** (5) 455-60 (1999).
 52. F. Gutierrez-Mora, A. Dominguez-Rodriguez, M. Jimenez-Melendo, R. Chaim and M. Hefetz, "Creep of Nanocrystalline Y-SZP Ceramics", NanoStructured Mater. **11** (4) 531-37 (1999).

53. B. G. Ravi, R. Chaim and A. Gedanken, "Sintering of bimodal alumina mixtures with a nanocrystalline component", NanoStructured Mater. **11** (7) 853-59 (1999).
54. B. Bloch, B. G. Ravi and R. Chaim, "Stabilization of transition alumina and grain growth inhibition in ultrafine Al₂O₃ - 5 wt% SrO alloy", Mater. Lett. **42** (1-2) 61-65 (2000).
55. S. Ramesh, E. Sominska, B. Cina, R. Chaim and A. Gedanken, "Nanocrystalline γ -Alumina Synthesized by Sonohydrolysis of Alkoxide Precursor in the Presence of Organic Acids: Structure and Morphological Properties", J. Am. Ceram. Soc. **83** (1) 89-94 (2000).
56. F. Gutierrez-Mora, A. Domínguez-Rodríguez, M. Jimenez-Melendo, and R. Chaim, "High Temperature Mechanical Behavior of YSZ Nanocrystals", Key Eng. Mater. **171-1787-792** (2000).
57. R. Chaim and B. G. Ravi, "Joining of alumina ceramics using nanocrystalline tape cast interlayers", J. Mater. Res. **15**, 1724-1727 (2000).
58. R. Ramamoorthy and R. Chaim, "Sintering and microstructure of glass coated nanocrystalline Y-TZP powder: effect of the glass", J. Mater. Res. **16**, 296-302 (2001).
59. A. Dominguez-Rodriguez, F. Gutierrez-Mora, M. Jimenez-Melendo, J. L. Routbort, and R. Chaim, "Current understanding of superplastic deformation of Y-TZP and its Application to joining", Mater. Sci. Eng. A **302**, 154-161 (2001).
60. R. Chaim, "Plastic Deformation in Impure Nanocrystalline Ceramics: A Model", Scripta Mater. **44**, 1523-27 (2001).
61. R. Ramamoorthy and R. Chaim, "Microstructural evolution in the nanocrystalline Y-TZP containing a silicate glass", J. Eur. Ceram. Soc. **21**, 2895-2902 (2001).
62. B. G. Ravi and R. Chaim, "Joining of ZrO₂ - 4 wt. % Y₂O₃ ceramics using nanocrystalline tape cast interlayers", J. Mater. Sci. **37**, 813-818 (2002).
63. S. K. Saha and R. Chaim, "Microstructural evolution in nanocrystalline alumina containing silicate glasses", J. Mater. Sci. **37**, 2927-2935 (2002).
64. A. Sashchiuk, L. Langof, R. Chaim and E. Lifshitz, "Synthesis and characterization of PbSe and PbSe / PbS core-shell colloidal nanocrystals", J. Crystal Growth **240**, 431-38 (2002).
65. R. Chaim, R. Ramamoorthy, A. Goldstein, I. Eldror and A. Gurman, "Uniaxial plastic deformation in the zirconia-based nanocrystalline ceramics containing a silicate glass", J. Eur. Cer. Soc. **23**, 647-657 (2003).
66. O. Markhsev and R. Chaim, "Grain growth in nanocrystalline 2Y-TZP ceramic with silica-based glassy phase", J. Mater. Res. **18**, 950-955 (2003).
67. C. Lorenzo-Martin, D. Gomez-Garcia, A. Gallardo-Lopez, A. Dominguez-Rodriguez, and R. Chaim, "An explanation of the high temperature creep of yttria tetragonal zirconia nanocrystals", Scripta Mater. **50**, 1151-1155 (2004).

68. R. Chaim and M. Hefetz, "Effect of grain size on elastic modulus and hardness of nanocrystalline ZrO_2 - 3wt% Y_2O_3 ceramic", J. Mater. Sci. **39**, 3057-3061 (2004).
69. C. Lorenzo-Martin, D. Gomez-Garcia, A. Gallardo-Lopez, A. Dominguez-Rodriguez and R. Chaim, "Plastic behaviour of nanostructured yttria tetragonal zirconia polycrystals: the effect of yttrium segregation", Mater. Sci. Forum **447-4**, 353-58 (2004).
70. R. Chaim, Z. Shen, and M. Nygren, "Transparent nanocrystalline MgO by rapid and low temperature spark plasma sintering", J. Mater. Res. **19**, 2527-2531 (2004).
71. C. Lorenzo, D. Gomez, A. Munoz, A. Dominguez, and R. Chaim, "Creep of nanocrystalline YTZP ceramics and the influence of the glassy phase", Key Eng. Mater. **264-268**, 797-800 (2004).
72. R. Chaim, A. Goldstein, I. Eldror, and A. Gurman, "Fabrication and plastic deformation of Y-TZP/alumina nanocomposite ceramics containing oxynitride glass", J. Mater. Sci. **40**, 187-197 (2005).
73. F. Gutierrez-Mora, d. Gomez-Garcia, m. Jimenez-Melendo, A. Dominguez-Rodriguez, and R. Chaim, "Experimental assesment of plasticity of nanocrystalline 1.7 mol% yttria tetragonal zirconia polycrystals", J. Am. Ceram. Soc. **88** (6) 1529-35 (2005).
74. O. Yeheskel, R. Chaim, Z. Shen and M. Nygren, "Elastic moduli of grain boundaries in nanocrystalline MgO ceramics", J. Mater. Res. **20**, 719-725 (2005).
75. D. Ehre, E. Y. Gutmanas and R. Chaim, "Densification of nanocrystalline MgO Ceramics by hot-pressing", J. Eur. Ceram. Soc. **25**, 3579-3585 (2005).
76. R. Chaim and M. Margulis, "Densification maps for spark plasma sintering of nanocrystalline MgO ceramics", Mater. Sci. Eng. A **407**, 180-187 (2005).
77. R. Chaim, R. Marder-Jaeckel, and J. Z. Shen, "Transparent YAG Ceramics by Surface Softening of Nanoparticles in Spark Plasma Sintering", Mater. Sci. Eng. A **429**, 74-78 (2006).
78. R. Chaim, "Densification Mechanisms in Spark Plasma Sintering of Nanocrystalline Ceramics", Mater. Sci. Eng. A. **443**, 25-32 (2006).
79. R. Chaim, "Superfast Densification of Nanocrystalline oxide powders by Spark Plasma Sintering", J. Mater. Sci. **41**, 7862-7871 (2006).
80. A. Dominguez-Rodriguez, D. Gomez-Garcia, E. Zapata-Solvas, J. Z. Shen and R. Chaim "Making Ceramics Ductile at Low Homologous Temperatures", Scripta Mater. **56**, 89-91 (2007).
81. R. Chaim, M. Kalina, and J. Z. Shen, "Transparent Yttrium Aluminum Garnet (YAG) Ceramics by Spark Plasma Sintering", J. Eur. Ceram. Soc. **27**, 3331-3337 (2007).
82. S. Kleiman and R. Chaim, "Thermal Stability of Nanocrystalline MgO Particles", Mater. Lett. **61**, 4489-4491 (2007).
83. R. Chaim, "Activation energy and grain growth in nanocrystalline Y-TZP ceramics",

Mater. Sci. Eng. A **486**, 439-446 (2008).

84. J. Reis and R. Chaim, "Densification maps for spark plasma sintering of nanocrystalline MgO ceramics: particle coarsening and grain growth effects", Mater. Sci. Eng. A **491**, 356-363 (2008).
85. R. Chaim and Z. Shen, "Grain size control by pressure application regime during spark plasma sintering of Nd-YAG nanopowders ", J. Mater. Sci. **43**, 5023-5027 (2008).
86. D. Ehre and R. Chaim, "Abnormal Hall-Petch behavior in nanocrystalline MgO ceramic", J. Mater. Sci. **43**, 6139-6143 (2008).
87. R. Chaim, A. Shlayer, and C. Estournès, "Densification of nanocrystalline Y₂O₃ ceramic powder by spark plasma sintering", J. Eur. Ceram. Soc. **29**, 91-98 (2009).
88. O. Tobi Even-Zur, and R. Chaim, "Effect of green density and electric field direction on densification of YAG nano-powders by spark plasma sintering", J. Mater. Sci. **44**, 2063-2068 (2009).
89. R. Chaim, O. Reinharz Bar-Hama "Densification of nanocrystalline NiO ceramics by spark plasma sintering", Mater. Sci. Eng. A **527**, 462-468 (2010).
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4. R. Chaim, "Nanocrystalline ZrO₂ by Crystallization of Amorphous Oxide", NATO - Advanced Study Institute on Mechanical Properties and Deformation Behavior of Materials Having Ultra-Fine Microstructures, Edts. M. Nastasi, D. M. Parkin and H. Gleiter, Kluwer Academic Pub., Dordrecht, p. 547-557 (1993).
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6. F. Gutierrez-Mora, A. Dominguez-Rodriguez, M. Jimenez-Melendo, R. Chaim, B. G. Ravi, and J. L. Routbort, "Superplasticity and joining of zirconia-based ceramics", Proc. of the Mater. Res. Soc. Symp., Boston (1999).
7. R. Chaim, R. Ramamoorthy, A. Goldstein, I. Eldror, and A. Gurman, "Uniaxial Plastic Deformation in the Zirconia-Based Nanocrystalline Ceramics Containing a Silicate Glass", in Ceramic Transactions, Vol. **137**, Ceramic Nanomaterials and Nanotechnology, Edited by Michael Z. Hu and Mark De Guire, p. 245-263, The ACerS Inc., Westerville, OH (2003).
8. R. Chaim, Z. Shen and M. Nygren, "Transparent Nanocrystalline MgO by Low Temperature Spark Plasma Sintering", in Ceramic Transactions, Vol. **159**, Ceramic Nanomaterials and Nanotechnology, Edited by Song Wei Lu, Michael Z. Hu and Yuri Gogotsi, p. 21-30, The ACerS Inc., Westerville, OH (2004).
9. C. Estournès, D. Oquab, S. Selezneff, M. Boidot, D. Monceau, D. Grossin, C. Drouet, U.-C. Chung, F. Roulland, C. Elissalde, M. Maglione, R. Chaim, Ph. Miele, J. Gurt-Santanach, G. Chevallier, A. Weibel, A. Peigney, Ch. Laurent, "Shaping of nano-structured materials or coatings through Spark Plasma Sintering", Materials Science Forum, vol. **706-709**, pp. 24 – 30 (2012).

Research reports or Case reports

1. R. Chaim, D.G. Brandon and L. Baum, "Ceramic Matrix Composites", 1987.
2. R. Chaim, D.G. Brandon and E. Cohen, "Development of Wear-resistant $\text{Al}_2\text{O}_3\text{-ZrO}_2$ Alloys for Dies at Elevated Temperatures", 1988.
3. R. Chaim, A.H. Heuer and P. Pirouz, "Interface Characterization and Stability in Silicon Carbide/Glass-Ceramic System", 1991.
4. R. Chaim, L. Gal-Or, and H. Bestgen, "Oxide Coatings on Non-oxide Ceramics by the Electrolytic Route", 1992.
5. R. Chaim and I. Levi, "Microstructural Characterization of Ceramic Catalysts", 1992.
6. R. Chaim and I. Levi, "Microstructural Characterization of Ceramic Catalytic Converters", 1993-95.
7. R. Chaim, L. Gal-Or, I. Zhitomirsky and H. Bestgen, "Composite and Alloy Oxide Coatings on Non-oxide Ceramics by the Electrolytic Route", 1994-95.
8. A. Berner and R. Chaim, "New Method for Fast Detection and Quantitative Composition Analysis of Micro-Inclusions in High Purity Materials", 1994-95.
9. R. Chaim, D. Sherman, T. Rouxel and H. Vesteghem, "Low Temperature Ductility and Superplastic Forming Ability of Nanostructured Ceramic Oxides", 1995-97.
10. A. Gedanken, R. Chaim and B. Cina, "New Methods for the Production of Nano-Structured Ceramics: their Sintering, Use for Bonding and Characteristics, 1997-99.
11. R. Chaim, A. Goldstein and I. Eldror, "Superplastic Nanocrystalline and Nanocomposite

Oxide Ceramics: Fabrication, Microstructure and Biaxial Superplastic Forming, 1999-2002.

12. R. Chaim, and W. D. Kaplan, "Optically Transparent YAG by Spark Plasma Sintering", 2004-05.
13. R. Chaim, L. Levin, and Z. Keren, "Transparent Polycrystalline Nd-YAG: Nanocrystalline Powder Synthesis and Densification by Pressureless Sintering", 2004-06.
14. L. Levin, and R. Chaim, "Transparent Polycrystalline Nd-YAG: Green Fabrication Methods and Densification by Pressureless Sintering", 2006-08.
15. R. Chaim and L. Levin, "Transparent Polycrystalline Oxides using Nanocrystalline Powders", 2008-09.
16. L. Levin and R. Chaim, "Transparent Polycrystalline Oxides using Nanocrystalline Powders", 2009-10.
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18. R. Chaim and L. Levin, "Transparent Polycrystalline Oxides using Nanocrystalline Powders", 2011-12.

CONFERENCES

Plenary or invited talks

1. R. Chaim, "Electrochemical composite oxide coatings on non-oxide ceramic substrates", Invited talk in section on Nano Technologies, the 33rd Conference of the Israel Association of Chemical Engineering, Beer-Sheva, April 1997.
2. R. Chaim, "Synthesis, processing and mechanical properties of nanocrystalline ZrO_2 ", Invited talk, Inter. Symp. on Metastable, Mechanically Alloyed and Nanocrystalline Materials, ISMANAM-97, Sitges (Barcelona), Spain, August 31-September 5, 1997.
3. R. Chaim*, R. Ramamoorthy, A. Goldstein, I. Eldror, and A. Gurman, "Uniaxial plastic deformation in the zirconia-based nanocrystalline ceramics containing a silicate glass", Invited talk, in Symposium C2: Nanostructured Materials and Nanotechnology, The 104th Annual meeting of the American Ceramic Society, St. Louis, Missouri, USA, April 28 - May 1, 2002.
4. R. Chaim*, D. Ehre, and E. Y. Gutmanas, "Densification of nanocrystalline MgO by hot-pressing", Keynote talk, in Advanced Research Workshop, Engineering Ceramics 2003, Balance between Nano- and Micro-Structure Design, Smolenice Castle, Slovakia, May 11-15, 2003.
5. R. Chaim, "Superfast densification of nanocrystalline ceramics by spark plasma sintering", Invited talk, in 7th Israeli Conference on Plasma Science and Applications, Tel-Aviv, February 2004.
6. R. Chaim*, Z. Shen, and M. Nygren, "Transparent nanocrystalline MgO by low temperature spark plasma sintering", Invited talk, in Symposium 06: Nanostructured

Materials and Nanotechnology, The 106th Annual meeting of the American Ceramic Society, Indianapolis, USA, April 18-21, 2004.

7. R. Chaim, "Superfast densification by spark plasma sintering of nanocrystalline oxide powders", Invited talk, in The Brandon Symposium, 2006 Annual meeting of TMS, San Antonio, TX, March 12-16, 2006.
8. R. Chaim, "Plasticity in nanoceramics", Invited talk, Inter. Conference on Modern Materials Science and Technology, CIMTEC 2006, Acireale, Italy, June 4-9, 2006.
9. R. Chaim*, and J. Z. Shen, "Spark plasma sintering of transparent yttrium aluminium garnet (YAG) ceramic", Invited talk, in International workshop on Mechanical properties in Advanced Materials: Recent insights, Fuenteherridos, Spain, June 7-11, 2006.
10. R. Chaim, "Spark plasma sintering of nanocrystalline ceramics: process characteristics and densification mechanisms", Invited talk, in 10th International Conference and Exhibition of the European Ceramic Society, Berlin, June 17-21, 2007.
11. R. Chaim*, and A. Shlayer, " Spark plasma sintering of ceramic powders: process assessment and densification mechanisms", Invited talk, in MS&T'07 Materials Science and Technology 2007 Conference and Exhibition, ACerS·AIST·ASM·TMS, Detroit, Michigan, September 16-20, 2007.
12. R. Chaim*, C. Estournes, and Z. Shen, "Nanocrystalline Ceramics by Spark Plasma Sintering of Oxide Nanopowders", Invited talk, in 2008 E-MRS Fall meeting, Warsaw, Poland, September 15-19, 2008.
13. R. Chaim, "Mechanisms controlling grain growth and densification during spark plasma sintering", Invited talk, in International workshop on Spark Plasma Sintering, Avignon, France, 6-7 October 2008.
14. R. Chaim "Spark Plasma Sintering of Ceramics: Densification Mechanisms and Strategies towards Desired Properties", Key Speaker, 9th Inter. Conf. Sintering, Kiev, Ukraine, September 7-11, 2009.
15. R. Chaim*, R. Marder, and C. Estournes, "Challenges in Preserving Nano-Crystallinity In Fully Dense Ceramics by Spark Plasma Sintering", Invited talk, in MS&T 09, Pittsburgh, USA, October 25-29, 2009.
16. C. Estournes*, R. Marder and R. Chaim, "Shaping of nanostructures materials or coatings through spark plasma sintering", Invited talk, in 23rd Colloquium Materials for Aerospace & Aeronautical Applications (3AF), Paris, France, December 7-8, 2009.
17. R. Chaim*, Z. Shen, and C. Estournes, "Transparent Ceramics by Spark Plasma Sintering of Oxide Nanopowders", Keynote lecture, in TMS 2010, Annual Meeting and Exhibition, Seattle, USA, February 14-18, 2010.
18. C. Estournes*, R. Marder and R. Chaim, Invited talk, in CIMTEC-2010, Montecatini, Italy, August 2010.
19. R. Chaim*, R. Marder, and C. Estournes, "Effects of Interfacial processes on Low Temperature Densification of Nanocrystalline Ceramics by Spark Plasma Sintering", Invited talk, in MS&T10, Houston, USA, October 17-21, 2010.

20. R. Chaim “Fabrication of Advanced Nanocrystalline Ceramics by Spark Plasma Sintering: Theory and Practice”, Invited talk, in 4th Inter. Symp. Advanced Ceramics (ISAC-4), Osaka, Japan, November 14-18, 2010.
21. R. Chaim*, R. Marder, C. Estournes, and Z. J. Shen, “Grain Size Stability during Spark Plasma Sintering of Nanocrystalline Ceramics”, Invited talk, in MS&T11, Columbus, USA, October 16-20, 2011.
22. R. Chaim, “Surface and Interface Effects during Densification of Ceramic Nanoparticles by Spark Plasma Sintering”, Invited talk, in 10th Pacific Rim Conference on Ceramic and Glass Technology, San Diego, USA, June 2-7, 2013.
23. R. Chaim*, R. Marder, C. Estournés, G. Chevallier, “Densification of Ductile Ceramic Powders by Spark Plasma Sintering: LiF, Y₂O₃ and YAG as Model Systems”, Invited talk, in 143th Annual meeting of TMS (TMS-2014), San Diego, CA, Feb. 16-20, 2014.
24. R. Chaim, “Densification mechanism maps with plasma fields during spark plasma sintering of ceramic powders”, Invited talk, in 3rd International Workshop on Spark Plasma Sintering, Toulouse, France, July 16-18, 2014.
25. C. Estournès*, R. Marder, R. Chaim, C. Elissalde, A. Maglione, R. Epherre, G. Chevallier, A. Weibel, A. Peigney and Ch. Laurent, "Densification mechanisms in spark plasma sintered nanocrystalline metals and ceramics" Keynot talk at the 1st International Workshop on nanoengineered materials, Tshwane University of Technology, Pretoria South Africa, 25&26 May 2015
26. C. Estournès*, R. Marder, R. Chaim, R. Epherre, C. Elissalde, M. Maglione, G. Chevallier, C. Manière, L. Durand, "Spark plasma sintering of ceramic powders: from evidence of specific effects to the elaboration of complex architectures and shapes", Invited talk at ROCAM 2015, 7-10 July 2015, Bucharest (Romania).
27. C. Estournès*, R. Marder, R. Chaim, C. Manière, G. Chevallier, L. Durand, "Advances in spark plasma sintering: from specific effects to the design of near-net complex shaped geometries", Invited talk at EuroPM2015 in Reims 4-7 Oct.7, 2015.
28. R. Chaim, "Ultrafast electric field assisted sintering of ceramic nanoparticles: Methods and densification mechanisms", Invited talk in PMF-SF2M (Poudres Matériaux frittés)- (Société Francoise de Métallurgie et de Matériaux) meeting, Toulouse, 3-5 May 2017.
29. R. Chaim, "Processes and mechanisms associated with rapid densification during flash sintering", Opening lecture in SPS 2017 - National workshop on spark plasma sintering, Villetaneuse (Paris) France 5-6 October 2017.
30. R. Chaim*, G. Chevallier, A. Weibel, and C. Estournès, "Flash sintering of oxide nanoparticles: A percolation phenomenon and particle surface softening as a universal behavior", Invited talk, International conference on Sintering 2017, San-Diego, USA November 12-16, 2017
31. R. Chaim*, C. Estournès, "On thermal runaway and local reactions during flash sintering of ceramic nanoparticles", Plenary lecture, International Workshop on Spark Plasma Sintering, Cagliari, Italy May 23-25, 2018.

32. R. Chaim*, G. Chevallier, A. Weibel, and C. Estournès, "Grain growth during spark plasma and flash sintering of ceramic nano-particles", Invited talk, Materials Science and Technology (MS&T18) 2018, Columbus, USA, October 14-18, 2018.
33. R. Chaim, "Electric field assisted sintering of ceramics: Underlying mechanisms and future technological prospects", Invited talk, MTM-2019, International Materials Technologies and Metallurgy Conference 2019, Istanbul, Turkey, 31 October - 1 November, 2019.

Contributed talks

1. R. Chaim*, J. Pelleg and M. Talianker, "Precipitation hardening in Cu-Mg alloys", in Fall meeting of the Metallurgical Society of AIME and Basic Science division of ACerS, Louisville, USA, October 1981.
2. R. Chaim*, J. Pelleg and M. Talianker, First Israel Materials Engineering Conference, Beer-Sheva, Israel, December 1981.
3. R. Chaim* and D. G. Brandon, "Short range order phenomena in ZrO_2 solid solutions", 2nd Inter. Conf. on the Science and Technology of Zirconia, Stuttgart, Germany, June 21-23, 1983.
4. A. H. Heuer, R. Chaim* and M. Ruhle, 2nd Israel Materials Engineering Conference, Beer-Sheva, Israel, February 1984.
5. R. Chaim* and D. G. Brandon, 2nd Israel Materials Engineering Conference, Beer-Sheva, Israel, February 1984.
6. R. Chaim and D. G. Brandon*, (Poster) "Microstructure development and massive Transformation in the ZrO_2 -rich Y_2O_3 system", Inter. Symp. on Engineering Ceramics, Jerusalem, Israel, October 1984.
7. R. Chaim and D. G. Brandon*, (Poster) "Microstructure and mechanical properties in heat-treated CaO - MgO - ZrO_2 alloy", Inter. Symp. on Engineering Ceramics, Jerusalem, Israel, October 1984.
8. D. G. Brandon* and R. Chaim, "Stress-induced phase transformations in Y_2O_3 -stabilized ZrO_2 ", Inter. Symp. on Engineering Ceramics, Jerusalem, Israel, October 1984.
9. J. Barta*, S. Shani, J. Litani, and R. Chaim, " ZrO_2 - Y_2O_3 ceramic nozzle throats for ramjet engines", Inter. Symp. on Engineering Ceramics, Jerusalem, Israel, October 1984.
10. R. Chaim*, D. G. Brandon and L. Baum, "Interface interactions and mechanical properties of Nicalon-reinforced cordieritic glass", 12th Annual Conf. on Composite and Advanced Ceramics, Cocoa Beach, Florida, USA January 17-20, 1988.
11. E. Iskevitch* and R. Chaim, "Stress corrosion cracking in $YBa_2Cu_3O_{7-x}$ ceramic superconductor", 7th CIMTEC, World Ceramic Congress, Trieste, Italy, July 1990.
12. R. Chaim, "Nanocrystalline ZrO_2 by crystallization of amorphous oxide", in NATO – Advanced Study Institute, 'Mechanical Properties and Deformation Behavior of Materials Having Ultra-Fine Microstructures', Vimeiro, Portugal, June 28 - July 10, 1992.

13. R. Chaim, "Fabrication and characterization of nanocrystalline oxides by crystallization of amorphous precursors", First Inter. Conf. on Nanostructured Materials, Cancun, Mexico, September 1992.
14. R. Chaim, "Fabrication and mechanical properties of SiC platelet-cordierite glass ceramic composites", 6th Israel Materials Engineering Conference, The Dead Sea, February 23-25, 1993.
15. A. Katz-Demyanets* and R. Chaim, "Grain growth in nanocrystalline oxide ceramics", 2nd Inter. Conf. on Nanostructured Materials, Stuttgart, Germany, October 3-7, 1994.
16. T. Aboud*, B.-Z. Weiss and R. Chaim, "Mechanical alloying in the immiscible W-Cu system", 2nd Inter. Conf. on Nanostructured Materials, Stuttgart, Germany, October 3-7 1994.
17. R. Chaim* and M. Hefetz, "Fabrication and mechanical properties of nanocrystalline ZrO_2 - 4wt% Y_2O_3 ceramics", 98th Annual Meeting of the American Ceramic Society, Indianapolis, April 14-17, 1996.
18. L. Chen, T. Rouxel*, R. Chaim, H. Vesteghem and D. Sherman, "Superplasticity and creep in monoclinic and Y-PSZ nano-grain zirconia", Inter. Conf. on Superplasticity of Advanced Materials - ICSAM-97, Bangalore, India, January 29-31, 1997.
19. R. Chaim, (Poster) "Percolative composite model for prediction of the properties in nanocrystalline materials", Inter. Conf. on Superplasticity of Advanced Materials – ICSAM-97, Bangalore, India, January 29-31, 1997.
20. R. Chaim, 8th Israel Materials Engineering Conference, Beer-Sheva, Israel, April 1997.
21. B. G. Ravi*, R. Chaim and A. Gedanken, "Sintering of bimodal alumina mixtures with a nanocrystalline component", 4th Inter. Conf. on Nanostructured Materials, Nano-98, Stockholm, Sweden, June 14-19, 1998.
22. M. Moskovits*, B. G. Ravi, and R. Chaim, "Sintering of bimodal Y-TZP powder mixtures with a nanocrystalline component", 4th Inter. Conf. on Nanostructured Materials, Nano-98, Stockholm, Sweden, June 14-19, 1998.
23. R. Chaim, "Plastic deformation in impure nanocrystalline ceramics", 101th Annual Meeting of the American Ceramic Society, Indianapolis, April 25-28, 1999.
24. R. Chaim, "Plastic deformation in impure nanocrystalline ceramics", Bi-national Israel-Slovenia workshop on Advanced Ceramic Systems, Shoshon, Israel, June 28-29, 1999.
25. A. Dominguez-Rodriguez*, F. Gutierrez-Mora, J. L. Routbort and R. Chaim, "Superplasticity and joining of ceramics", 9th Israel Materials Engineering Conference, Haifa, Israel, December 6-7, 1999.
26. R. Chaim, "Plastic deformation in impure nanocrystalline ceramics", 9th Israel Materials Engineering Conference, Haifa, Israel, December 6-7, 1999.
27. B. G. Ravi and R. Chaim*, "Joining of ZrO_2 – 4.5wt% Y_2O_3 ceramics using nanocrystalline tape cast interlayers", 9th Israel Materials Engineering Conference, Haifa, Israel, December 6-7, 1999.

28. R. Chaim, "Plastic deformation in impure nanocrystalline ceramics: A model", 5th Inter. Conf. on Nanostructured Materials, Nano-2000, Sendai, Japan, August 20-25, 2000.
29. R. Chaim, "Plastic deformation in impure nanocrystalline ceramics", 12th International Conference on Strength of Materials (ICSMA-12), Asilomar, CA, USA, August 27-September 1, 2000.
30. R. Chaim*, and B. G. Ravi, (Poster) "Joining of alumina ceramics using nanocrystalline tape cast interlayers", The 26th Annual Inter. Conf. on Advanced Ceramics and Composites, Cocoa Beach, Florida, USA, January 13-18, 2002.
31. R. Chaim, R. Ramamoorthy, A. Goldstein, I. Eldror, and A. Gurman, "Plastic deformation in zirconia-based nanocrystalline ceramics containing silicate glasses", 6th Inter. Conf. on Nanostructured Materials, Nano-2002, Orlando, Florida, USA, June 16-21, 2002.
32. R. Chaim*, D. Ehre, and E. Y. Gutmanas, "Densification of nanocrystalline MgO ceramics by hot-pressing", 105th Annual Meeting of the American Ceramic Society, Nashville, April 27-30, 2003.
33. D. Ehre, E. Y. Gutmanas, and R. Chaim*, "Densification of nanocrystalline MgO ceramics by hot-pressing", 8th European Ceramic Society Conference, Istanbul, Turkey, June 29- July 3, 2003.
34. C. Lorenzo-Martín*, D. Gómez-García, A. Gallardo-López, A. Domínguez-Rodríguez and R. Chaim, "Plastic behaviour of nanostructured Y-TZP: the effect of yttrium segregation", 8th Inter. Conf. on Superplasticity in Advanced Materials, Oxford, UK, July 28-30, 2003.
35. R. Chaim*, Z. Shen, and M. Nygren, "Optically transparent nanocrystalline oxides by spark plasma sintering", IMEC-11, The 11th Israel Materials Engineering Conference, Haifa, Israel, December 24-25, 2003.
36. R. Chaim*, Z. Shen, and M. Nygren, "Transparent nanocrystalline MgO by spark plasma sintering", 7th Inter. Conf. on Nanostructured Materials, Nano-2004, Wiesbaden, Germany, June 20-24, 2004.
37. R. Chaim*, and M. Margulis, "Densification maps for spark plasma sintering of nanocrystalline MgO ceramics", in 107th Annual meeting of the American Ceramic Society, Baltimore, April 10-13, 2005.
38. R. Chaim, "Superfast densification of nanocrystalline oxide powders by spark plasma sintering (SPS)", IMEC-12, The 12th Israel Materials Engineering Conference, Beer-Sheva, Israel, March 1-2, 2006.
39. L. Levin* and R. Chaim, "Synthesis of nanocrystalline yttrium aluminum garnet (YAG) powders with soft agglomerates by coprecipitation", IMEC-13, The 13th Israel Materials Engineering Conference, Haifa, Israel, December 9-10, 2007.
40. A. Shlayer, R. Chaim, and C. Estournes, (Poster) "densification of nanocrystalline yttrium oxide powder by spark plasma sintering (SPS)", IMEC-13, The 13th Israel

Materials Engineering Conference, Haifa, Israel, December 9-10, 2007.

41. R. Chaim*, L. Kleiner, and S. Kalabukhov, "In-site Layer Structured TiC Ceramics by Spark Plasma Sintering of Nano-powders", 11th Inter. Conf. and Exhibition European Ceramic Society, Cracow, Poland, June 21-25, 2009.
42. R. Marder*, R. Chaim, and C. Estournes, "Preserving Nano-Crystallinity in Fully Dense Y₂O₃ Ceramics by Spark Plasma Sintering", 9th Inter. Conf. Sintering, Kiev, Ukraine, September 7-11, 2009.
43. R. Marder*, R. Chaim, and C. Estournes, "Effect of LiF addition on the densification of nanocrystalline Y₂O₃ ceramics by spark plasma sintering", 14th Israel Materials Engineering Conference, Tel-Aviv, December 13-14, 2009.
44. R. Marder*, R. Chaim, and C. Estournes, "Grain growth stagnation in fully dense nanocrystalline Y₂O₃ by spark plasma sintering", 12th Conf. & Exhibition of the European Ceramic Society, Stockholm, Sweden, June 19-23, 2011.
45. R. Chaim* and R. Marder "Grain growth by grain rotation during spark plasma sintering of ceramic nanoparticles" in Sintering 2011, Jeju, Korea, August 28-31, 2011.
46. R. Chaim, "Densification and preservation of the nanocrystalline character of nanopowders by spark plasma sintering", in IMEC-15, Dead Sea, Israel, February 28 – March 1, 2012.
47. R. Chaim, "Preserving the nanocrystalline character during densification by spark plasma sintering (SPS)", in Nano2012, 11th International conference on Nanostructured Materials, Rhodes, Greece, August 26-31, 2012.
48. R. Marder*, C. Estournès, G. Chevallier, S. Kalabukhov, R. Chaim, "Spark Plasma Sintering (SPS) of Ductile Ceramic Particles: Study of LiF", 13th Inter. Conf. of the Eur. Ceramic Soc., Limoges, France, June 23-27, 2013.
49. R. Marder*, C. Estournès, G. Chevallier, S. Kalabukhov, R. Chaim, "Spark Plasma Sintering Study: Hard versus Soft Ceramics", IMEC-16, Haifa, Feb. 23-24, 2014.
50. R. Chaim, "Densification mechanism maps with plasma fields during spark plasma sintering of ceramic powders", in 14th International Conference European Ceramic Society, Toledo, June 21-25, 2015.
51. R. Chaim*, C. Estournès, G. Chevallier, "Spark and plasma aided densification mechanisms during spark plasma sintering of ceramic powders", in "Electric Field Assisted Sintering and Related Phenomena Far From Equilibrium" An ECI Conference, Tomar, Portugal, March 6-11, 2016.
52. R. Chaim, "Invasive percolation model for flash sintering of ceramic powders densified by liquid film capillary", in 15th Conference & Exhibition of the European Ceramic Society, Budapest, Hungary, July 9-13, 2017.
53. R. Chaim, "Kinetics of liquid-assisted densification during flash sintering of ceramic nanoparticles", in "Electric Field Enhanced Processing of Advanced Materials II: Complexities and Opportunities", An ECI conference, Tomar, Portugal, March 10-15, 2019.

54. R. Chaim, "Kinetics of Liquid-assisted densification during flash sintering of ceramic particles", 16th Conference of the European Ceramics Society, Turin, Italy, June 16-20, 2019.

Participation in organizing conferences

1. 9th International Conf. on the Strength of Metals and Alloys (ICSMA-9), Haifa, Israel, July 14-19, 1991, Secretary.
2. 6th Israel Materials Engineering Conference, IMEC VI, Dead Sea, Israel, February 23 – 25, 1993, Member of the organizing committee.
3. 7th Israel Materials Engineering Conference, IMEC VII, Technion, Haifa, November 27-29, 1994, Secretary.
4. The Bi-National Israel-Slovenia Workshop on Advanced Ceramic Systems, Shores, Israel. June 28-29, 1999, Member of the organizing committee.
5. 9th Israel Materials Engineering Conference, IMEC IX, Technion, Haifa, December 6-7, 1999, Conference Chairman.
6. 35th Meeting of the Israel Society for Microscopy, Technion, May 2001, Member of the organizing committee.
7. The 15th International Congress on Electron Microscopy, ICEM-15, Durban, South Africa, September 1-6, 2002. Member of the International Scientific Advisory Committee.
8. The 13th International Conference on Strength of Materials (ICSMA-13), Budapest, Hungary, September 2003. Member of the International Committee.
9. The 14th International Conference on Strength of Materials (ICSMA-14), Xi'an, China, June 4-9, 2006. Member of the International Committee.
10. The 4th Laser Ceramics Symposium: International Symposium on Transparent Ceramics for Lasers, Shanghai, China, November 10-14, 2008. Member of the International Advisory Committee.
11. The 15th International Conference on Strength of Materials (ICSMA-15), Dresden, Germany, August 16-21, 2009. Member of the International Committee.
12. International Workshop on Spark Plasma Sintering, Capbreton, France, October 20-21, 2011. Member of the Scientific Committee.
13. International workshop on Spark Plasma Sintering, Cagliari, Italy, May 23-25, 2018. Member of the Scientific Committee.
14. 20th International Metallurgy and Materials Congress, Istanbul. Turkey, November 12-14, 2020. Member of the Scientific Committee.