NUCLEAR RESEARCH CENTER - NEGEV

P.O. Box 9001, Beer-Sheva, 84190, Israel

January 13, 2019

CURRICULUM VITAE

PERSONAL INFORMATION

Name: **Carmi Rami**

Date of birth: December 13, 1970. (Netanya, Israel)

Nationality: Israeli

Marital status: Married, 3 children

Work address: Materials Division, Nuclear Research Center- Negev, P.O.Box 9001
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EMPLOYMENT

1998-present: Researcher, Materials Division, Nuclear Research Center- Negev, Israel.

2011-present: Deputy Chairman of Israeli Acoustic Emission Working Group (voluntarily).

ACADEMIC EDUCATION

2015 - present Ph.D candidate

Materials Engineering department, the Faculty of Engineering, Ben-Gurion University of the Negev, P.O.Box 653, Beer-Sheva 84105, Israel. Expected date for Thesis submission 03/2019

"Damage evaluation in laminate composite during quasi-static and fatigue loading using advanced NDT techniques and micromechanical modelling". Supervisors: Prof. R.Shneck (BGU), Dr. A.Bussiba (NRCN), Prof. A.Kontsos (Drexel University, USA)

2006 M.Sc in Materials Engineering

Ben-Gurion University of the Negev.

M.Sc. Thesis: "Hydrogen Reaction of Ti-Ta β Homogenize Alloy". Supervisor: Prof. D.Eliezer. Cum Laude.

1998 B.Sc in Materials Engineering

The Faculty of Materials Engineering. Technion - Israel Institute of Technology. Technion City, Haifa 32000, Israel.

Senior project: "The influence of nanometric component on the packaging and densification of $A1_20_3$ bimodal". Supervisor: Prof. Rachman Hayim.

1998 B.A in Physics

The Faculty of Physics, Technion.

2012 - 2013 Sabbatical researcher scientist – Theoretical and applied mechanics group. The Department of Mechanical Engineering and Mechanics. Drexel University, Philadelphia, PA, USA.

2011 - Today Vice president of the Israeli Acoustic Emission Working Group, Mechanical Engineering Department, NDT branch. The Association of Engineers, Architects and Graduates in technologies Sciences in Israel, Engineering House, Tel Aviv, Israel.

I.D.F

1989-1993 Compulsory service.

Academic Activity

1. Senior project supervisor "Monitoring and Identification of Progressive Damage in Aerospace Composites using Non Destructive Testing" Utku Guclu, Drexel University, 2012-2013, Department of Materials Engineering, Philadelphia, PA, USA.
2. Technician project supervisor "Resistance furnace handbook", Ehud Martsiano, Etgar College, Beer-Sheva 2003.

Professional training

2011 NDT Level III Basic training, Israeli Association of Engineers, Tel-Aviv, Israel.

2010 Acoustic Emission High Tech Week, PAC - Princeton Junction, New Jersey, U.S.A.

2008 Acoustic Emission Level II, PAC - Princeton Junction, New Jersey, U.S.A.

2002 Project Management, Israel.

Technical certification

2016 Recertified ASNT NDT Level III in A.E, Certificate number 198410, exp. date 04/2021

2011 Certified ASNT NDT Level III in A.E, Certificate number 198410, exp. date 04/2016

RESEARCH OF INTEREST

- Fundamentals properties of alloys (creep, mechanical properties, hardness, micro hardness, fatigue, impact testing, stress corrosion cracking, etc..) – this alloys designated for general application such as pipes, structural materials for vessels, crane, component in vehicle industry (research) and others.
- Acoustic Emission technique for fundamental and applications aspects such as detecting defects in structure components, monitoring of failure mechanisms in terms of characteristic frequency and sequence of events up to fracture.
- Characterization of energy absorbs materials (metal foams) for use as components in the automotive industry.
- Research of Mg and Al alloys for uses as lightweight component in the automotive and aerospace industry (with the collaboration of the Mg consortium-Dead sea works).
- Failure analysis combined with Acoustic Emission monitoring for research application of composite materials, detecting defects in vessels and pipes components.
- Physical metallurgy of metals: phase transformation during solidification or stress concentration, the influence of cooling rate on grain size, martensitic transformation, stress induced transformation, etc.

Acquired research skills

- Performing mechanical testing of materials: tensile, compression, fatigue, fractures toughness, impact, bending, hardness tests, crack resonance propagation, da/dN measurements.
- Examination of microstructure and fractoghraphy using optical and scanning electron microscopy, stereoscopy and x-ray analysis.
- Application of fracture mechanics to engineering problems and failure analysis.
- Examination and analysis of texture and phase content using X-ray diffraction.
- Project managements of materials and engineering components development.
- Group team management of engineers and technician.
- Acoustic Emission testing of materials, components and structures during experiments, external loads or under service, using computerized AE systems with 4 channels or higher.
- Performing of Digital Image Correlation (DIC) measurements during mechanical testing of samples or components using GOM systems in order to achieve strain maps on the surface of the sample during the experiment.
- Performing classification algorithms of AE data using artificial neural network algorithm (Learning Vector Quantization) and statistical classification algorithm such as k-means, forgy, max-min distance etc.
- Performing signal processing on electrical AE waveform such as Fast Fourier Transform (FFT), Short Time FFT (STFFT) and Gabor wavelet analysis.
- *Mechanical testing software*: Merlin, Series IX, Wave matrix, Fast track (DaDn, JIC, KIC, Max), Blue Hill, Tinius Olsen dyntup, Zwick-Roell ZHμ-HD (hardness and micro hardness software), Zwick-Roell test Xpert II.
  Acoustic Emission software: Aewin (acquiring data), Noesis (data analysis).
  Scientific computing - Matlab, Mathematica, Mathcad, Comsol, Origin Pro, Pascal, Fortran.

Excellency and rewards

1. **Appreciation award** in AEWG 58: **R.Carmi**, P.A.Vanniamparambil, J.Cuadra, A.Bussiba, A.Kontsos "Damage onset and accumulation in fiber reinforced metal laminate under quasi-static and fatigue loading monitored by Acoustic Emission method" 58th Acoustic Emission Working Group meeting (AEWG 58), May 22-25 2016, Drexel University, Philadelphia, PA, USA
2. **Best paper award**: **R.Carmi**, I.Alon, E.Chakotay, A.Bussiba "Acoustic emission response as complementary method in mechanical behavior characterization of different graphites" International Acoustic Emission Symposium IAES22, 11-14/11/2014, Sendai, Japan.
3. **Appreciation and significant contribution award**: **R.Carmi** "Research activities of the Theoretical and Applied Mechanics Group", June 2013. The Department of Mechanical Engineering and Mechanics. Drexel University, Philadelphia, PA, USA
4. **Best research award**: P.Abraham, **R.Carmi**, F.Khan, A.Kontsos, I.Bartoli "A Novel Structural Health Monitoring Approach for Damage Detection in Critical Structural Components", Drexel Research Day, Drexel University, Philadelphia, PA, U.S.A. April 18th 2013.