Chair Message:

These are probably the most oddball times that our civilization has recently faced. Our habits, social interactions and work patterns are changing and adapting. And the same applies to our chapter. Safety and health of our members and guests are our absolute priority. Considering all the factors the Executive Board of NY/NJ Chapter is organizing a set of exclusive webinars. We, as always, strive to bring interdisciplinary professionals together. And this time we are planning to take advantage of the global situation, and prepare presentations from around the globe.

We are starting in a few weeks with the presentation from NJIT, then at the end of June you will have the opportunity for a virtual plant tour in Indiana, and in Ukraine at the end of July. Please stay tuned for more details and upcoming presentations in the following newsletters.

I wish all of you staying safe and healthy

To join the meeting, please see next page.

Chairman: Igor Sevonkaev
Praxair Electronic Materials, a member of the Linde Group

Our Sustaining Members:
Belmont Metals
Bodycote Thermal Processing
G. Cotter Enterprises
General Magnaplate Corp.
Praxair Electronics
Temperature Processing Co

Our Metro NY-NJ Chapter thanks these companies for their ongoing support.

Visit Us at: ASM Metro New York-New Jersey Chapter Web Site:
http://www.asminternational.org/web/metro-ynnj-chapter/home

micron inc.
ANALYTICAL SERVICES

SEM EDX ESCA AUGER FTIR
XRF XRD XRR DSC/TGA

3815 LANCASTER PIKE, WILMINGTON, DE 19805
PHONE: (302) 998-1184 Fax: (302) 998-1836
E-mail micronanalytical@compuserve.com
WEB PAGE: WWW.MICRONANALYTICAL.COM

THERMAL INSULATION
Alumina to Zirconia
Machinable Rigid Materials
Flexible Felts and Cloths
Zircar Samples Available
(845) 651-3040
sales@zircarzirconia.com
www.zircarzirconia.com

Delivering the Right Results
• Sample Preparation Equipment
• Hardness Testers
• Opto-Digital Microscopes
• Metallographs
• Atomic Emission Spectroscopy
• Elemental Analysis
• Ceramics
• Accessories and Supplies
Bernie Lee
Ph: 401-480-6675 bernie_lee@leco.com
LECO Corporation | www.leco.com

June 2020
ASM International Metro NY NJ Chapter
816th Technical Meeting:
June 16th 2020, Tuesday, 6:00 pm, EST

Virtual meeting starting on 6:00 pm

To Join:
Click This Link:
https://meet.google.com/hjp-tfcw-ijq
Or Scan With Your Phone:
June Presentation:

Experiments and modeling of the viscoelastic behavior of polymeric gels

Speaker: Nikola Bosnjak
PhD Candidate
Department of Mechanical and Industrial Engineering
New Jersey Institute of Technology

Abstract:

Polymeric materials consist of long chain of molecules, which form a polymer network. Due to the interactions between polymer chains, many polymeric materials are known to exhibit viscoelastic behavior. When a polymer network is exposed to a suitable solvent, the solvent molecules are able to diffuse inside the network, causing it to undergo a volumetric deformation, known as swelling.

A polymeric material in this mixed and swollen state is known as a polymeric gel. Polymeric gels are ubiquitous, they are found in a wide variety applications including: soft robots; packers in the oil industry; valves in microfluidic channels; and a diverse array of biomedical applications. In addition, many biological tissues are gel-like in constitution, which makes a thorough mechanistic understanding of these materials essential for our understanding of mechanical response of human, animal, and plant tissues.

Recent years have seen the development of a vast number of models aimed to capture the coupled diffusion-deformation behavior of polymeric gels. However, there is an insufficient amount of experimental data to complement such theoretical research. Accordingly, there is a gap between existing models and our emergent experimental research, indicating that nearly all current models are in need of significant improvement.

The objective of our research is to experimentally determine the change in behavior of viscoelastic polymers between the dry and swollen states. The experimental procedure includes free swelling experiments along with large deformation mechanical testing in both dry and swollen states. We employ commercially available VHB 4910, a polymeric material known to exhibit viscoelastic behavior in dry state, and which is well known to swell when exposed to n-Pentance and o-Xylene.

Our experimental program allows us to observe key features of the viscoelastic response of the material, and make an improved model. Our newly developed experimental program provides transformational insight into the behavior of swollen viscoelastic polymers and helps to bridge the gap between experimental and theoretical research.
Speaker’s Bio: Nikola Bosnjak

New Jersey Institute of Technology.

Nikola Bosnjak is a final year PhD candidate in the Mechanical Engineering department at the New Jersey Institute of Technology. He conducted his research at the Laboratory for the Mechanics of Advanced Materials, under the mentorship of Dr. Shawn Chester. Prior to that, he obtained both BS and MS in Mechanical Engineering from the University of Belgrade, funded by the Fellowship of Republic of Serbia.

The focus of Nikola’s research is on the coupled multiphysics behavior of soft materials, more specially the chemo-mechanically coupled response of polymeric gels. His work involves

(i) designing of experimental procedures to characterize the continuum-level behavior of polymeric gels,

(ii) developing and calibrating novel multiphysics constitutive models and

(iii) numerical implementation of the models for use in the finite element analysis.
**It’s Official!**

**Congratulate Mr. David Jones, Senior Principal Materials Engineer of Stryker being selected for the 2020 Nominating Committee of ASM international**

David Jones is an experienced Senior Principal Materials Engineer in Advanced Operations with Stryker. As an expert in medical replacement components and their analysis, he brings together a knowledge of metals, polymers and ceramics, together with an understanding of their interaction in the complex environment of the human body. He holds materials degrees from both U.S. and U.K. institutions. His past work experience over thirty years provides a broad background in a number of varied industrial companies and academia.

He was elected as Director on Executive Committee of Metro NY NJ chapter in 2019.

---

**Photo of November meeting, Palisades Park, NJ**
# ASM Metro NY-NJ Chapter 2020-2021 EXECUTIVE COMMITTEE

**Chairman:**
Dr. Igor Sevonkaev  
Linde

**Vice Chairman:**
Zunjian Yang  
Autemann

**Secretary:**
Alfred Snowman  
Retired - Praxair

**Treasurer:**
Victor Megerman  
VHAM Associates

**Immediate Past Chairman:**
Chris Rasmussen  
Stryker

## DIRECTORS

**Term through 2020**
- Kim Benson-Worth  
  Power Solution LLC
- Dr. Richard F. Lynch  
  Lynch & Associates
- Zunjian Yang  
  Automann

**Term through 2021**
- Michael Gershkovitch  
  Consultant
- Dr. Veljko Samardzic  
  N.J.I.T.
- Dr. Robert Sherman  
  Applied Surface Technologies
- Pierre Taubenblat  
  Promet Associates

**Term through 2022**
- Nikhil Gupta  
  NYU, Tandon School of Engr.
- Michael Gershkovitch  
  Consultant

**Term through 2023**
- Larry Abernethy  
  BASF Catalysts, LLC
- Dr. Roumiana Petrova  
  NJIT
- Krishnakant Patel  
  Retired Consultant
- David Jones  
  Stryker

## ADVISORY BOARD

- Herbert Goldenberg
- Satish Punj
- Colin McCaul
- AEIS LLC  
  Consultant
- Victor Megerman  
  Consultant

Please Support Your ASM Metro NY-NJ Chapter Newsletter Advertisers

Newsletter Contact info:  
Victor Megerman  
victormegerman@verizon.net

Newsletter designed by Zunjian Yang (Zunjian.yang@gmail.com).  
All right reserved by ASM International Metro NY NJ Chapter.