

International Year of Glass 2022
International Course on the Structures of Glass
Fall 2022 Begin Date: Tuesday September 6, 2022
Lectures Tu and Thrs 12 noon – 130 CT
Course Lead: Steve W. Martin

<https://iastate.zoom.us/j/97985832132?pwd=UU9xQ084czZjMxB2eXNySnFRbWQ4dz09&from=addon>

COURSE LOGIN INFORMATION ABOVE AND ON THE NEXT PAGE

1. Introduction and Overview

9/6 - **Steve W. Martin** - Introduction, Overview, Syllabus, Review of Glass Formation

9/8 - **Steve Feller, Dick Brow** - Review of the Short and Intermediate Range Order Models Structures of Glass, Importance of the Glass Structure in Properties

2. NMR Studies of Glass Structures

9/13 - **Scott Kroeker** – Introduction of physical principles, overview of interactions, practical aspects (1D)

- **Hellmut Eckert** - Applications of REDOR to connectivity in glasses

9/15 - **Scott Kroeker** - Quadrupolar interactions: theory and practice

- **Joe Zwanziger** - Lineshape fitting, Czjzek distribution

9/20 - **Pierre Florian/Franck Fayon** - 2D NMR, correlation methods, relationship to structure, MD/GIPAW

9/22 - **Hellmut Eckert** - EPR: cw and pulsed

9/27 - **Punit Boolchand** - Mössbauer spectroscopy in glass science

3. Scattering Studies of Glass Structure

9/29 - **Alex Hannon** - Scattering Techniques Introduction

10/4 - **Joerg Neuefeind** - Neutron Scattering

10/6 - **Laurent Cormier** - X-ray Scattering

10/11 - **Laurent Cormier, Daniel Neuville** - EXAFS

4. Vibrational and Optical Spectroscopy Studies of Glass Structures

10/13 - **Efstratios Kamitsos** - Vibrational Spectroscopy Introduction

10/18 - **Efstratios Kamitsos** - Infrared Spectroscopy

10/20 - **Daniel Neuville** Raman Spectroscopy

10/25 - **TBD** - Optical Spectroscopy

5. Modelling and Simulation Studies of Glass Structure

10/27 – **Jincheng Du, Walter Kob** - Overview of Atomistic Simulations and Structural Analysis

11/1 – **John Kieffer, Liping Huang** - Classical Molecular Dynamics Simulations and Applications

11/3 – **Matthieu Micoulaut, Mathieu Bauchy** - Ab Initio Molecular Dynamics Simulations and Applications

11/8 – **Mathieu Bauchy** – Machine Learning techniques of Structural Analysis

6. Electron-Based Studies of Glass Structure

11/10, 15 - **Giovanna Pintori, Elti Cattaruzza** - Techniques and Studies using X-ray PhotoElectron Methods

11/17 – **Masashi Watanabe** – Electron Energy Loss Spectroscopy Studies of Glass Structure

7. Case Studies of the Structure of Glass

11/ 29, 12/1 - **Francisco Munoz Jianrong Qiu**, - Structural Studies of Oxide Glasses

12/6, 12/8 - **Punit Boolchand, Steve W, Martin** - Structural Studies of Non-Oxide Glasses

8. Group Presentations, Evaluation, and Discussion

12/ 13 - 8. Group Presentations, Evaluation, and Discussion

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