



**FunGlass**  
centre for functional and  
surface functionalized glass



TRENČIANSKA UNIVERZITA  
ALEXANDRA DUBČEKA V TRENČÍNE

**INVITATION**

**Science Webinar**

**“LECTURES ON SINTERING”**

**“SINTERING: DENSIFICATION, GRAIN GROWTH AND  
MICROSTRUCTURE”**

**BY**

**SUK-JOONG L. KANG**

**FunGlass, April 15 – May 15, 2024**

**PLACE: Conference room B 4.03 FunGlass TNUAD and online**



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**Research Interest:**

- Grain growth and microstructural evolution in polycrystals with change in interface structure and chemistry
- Theory and Practice of Sintering – microstructure control and related physical properties



## PROGRAM

DATE	TIME (CET)	LECTURE
April 17, Wednesday	2:00 p.m. – 4:00 p.m.	Basis of Sintering Science I.
April 19, Friday	10:00 a.m. – 12:00 a.m.	Basis of Sintering Science II.
April 26, Friday	10:00 a.m. – 12:00 a.m.	Bonding and Densification I.
April 29, Monday	2:00 p.m. – 4:00 p.m.	Bonding and Densification II.
April 30, Tuesday	2:00 p.m. – 4:00 p.m.	Grain Growth and Microstructural Evolution I.
May 6, Monday	2:00 p.m. – 4:00 p.m.	Grain Growth and Microstructural Evolution II.
May 7, Tuesday	2:00 p.m. – 4:00 p.m.	Supplementary subjects I.
May 13, Monday	2:00 p.m. – 4:00 p.m.	Supplementary subjects II.

## MAIN SEQUENCE / CONTENT OF LECTURES:

### Part I. *Basis of Sintering Science*

- Brief description of sintering processes and their parameters
- Interfacial energy and driving force of sintering
- Sintering and polycrystalline microstructure

### Part II. *Bonding and Densification*

- **Solid state sintering (SSS) Models and Densification**
  - Models and kinetics
  - Effects of processing variables
- **Liquid phase sintering (LPS) Models and Densification**
  - Role of liquid in densification
  - Densification kinetics (effects of processing variables)

### Part III. *Grain Growth and Microstructural Evolution*

- **Liquid phase sintering**
  - Grain growth in a matrix (Ostwald ripening)
  - Effect of interfacial energy anisotropy
- **Solid state sintering**
  - Grain growth in a pure and dense system
  - Effects of second phase particles and solute segregation
  - Effect of pores on microstructure development
  - Effect of boundary energy anisotropy

### Part IV. *Supplementary subjects*

- Sintering of ionic compounds
- Diffusion induced grain-boundary migration
- Discussion on potential strategies for full densification