



University Alliance of the Silk Road (UASR)

Virtual Summer Courses 2020

# Frontiers in Materials Research

### Organizers

Materials Science and Engineering Sub-alliance of UASR
School of Materials Science and Engineering, Xi' an Jiaotong University

#### Open Time

July 20 - 31 2020

#### How to join

Step 1: Visit http://ss.mooc.xjtudlc.com and click "Course Registeation" in the top-left corner.

Step 2: Under "My Training Class" section, click "Course + Register" on the right hand side. Type the Course Verify Code "S19010" in the pop-up window, and register for this course.

Step 3: Starting from July 20, 2020, login with your registered email address and password: ikcest at http://ss.mooc.xjtudlc.com to begin the course study. For the participants who register after July 20, the ac-

#### Notes

- 1. Seven other courses are available. Please check the respective Course Verify Code at the bottom and repeat Step 2 for registration. All courses are free of charge.
- 2. We appreciate your feedback after attending the course. Please login at <a href="http://new.ikcest.org">http://new.ikcest.org</a> with your registered email address and your own password, and finish the Survey.
- 3. For any question, please contact us at msexjtu@mail.xjtu.edu.cn

#### Introduction

Materials Science and Engineering is a multidisciplinary research field that covers materials research, technological engineering, chemistry and physics, providing essential supports for electronics, energy, mechanical and chemical engineering, and other industries. This course will provide 10 focused lectures to present frontiers in materials research, including semiconductor materials, two-dimensional materials, polymer materials, advanced energy materials, ferroic smart materials, 3D printing materials, structural and engineering materials and others. This course will emphasize the leading role of materials science in fundamental research, and will also discuss its indispensable role in industrial developments. Every lecture will provide interested participants a comprehensive list of references for further reading and investigations.

## Lecturers



## Wei Zhang (Coordinator)

Professor at School of Materials Science and Engineering, Xi'an Jiaotong University.



# Georg Mehl

Professor at University of Hull, UK. Adjunct Professor at Xi'an Jiaotong University.



# Tao Li

Professor at School of Materials Science and Engineering, Xi'an Jiaotong University.



## Suck Joo Na

Professor at Xi'an Jiaotong University. Fellow of the Korean Academy of Science and Technology.



## Kai Chen

Professor at School of Materials Science and Engineering, Xi'an Jiaotong University.



# Oktay Aktas

Associate Professor at School of Materials Science and Engineering, Xi'an Jiaotong University.



# Jian Zhou

Professor at School of Materials Science and Engineering, Xi'an Jiaotong University.

### Course Program

NO.#

Lecture

Content

Novel Materials for future

Lecturers

Open Date

July 20

Lecture	memory and neuro-inspired computing technologies	Wei Zhang	July <b>20</b> 2020
Lecture 2	Liquid Crystal - Noble Metal Nanocomposites: Design Parameters and Functionality	Georg Mehl	July 21 2020
Lecture 3	The interplay between 2D materials and ferroelectric materials	Tao Li	July <b>22</b> 2020
Lecture 4	Laser-matter interaction and Laser materials processing	Suck Joo Na	July 23 2020
Lecture <b>5</b>	The design, characterization, and heat treatment of 3D printed superalloy single crystals	Kai Chen	July <b>24</b> 2020
Lecture 6	Ferroic smart materials and their applications	Oktay Aktas	July <b>27</b> 2020
Lecture 7	Computational design of nanoscale materials and their physical applications	Jian Zhou	July <b>28</b> 2020
Lecture B	Confining dislocation sources by interfaces	Ihor Radchenko	July <b>29</b> 2020
Lecture 9	Novel molten salt battery for grid energy storage	Xiaohui Ning	July <b>30</b> 2020
Lecture 10	Novel Materials for future room temperature gas sensor and DNA sensor inspired nanomaterials	Muhammad Shafa	July 31 2020



## Xiaohui Ning

Associate Professor at School of Materials Science and Engineering, Xi'an Jiaotong University.



#### Muhammad Shafa

Assistant Professor at School of Materials Science and Engineering, Xi'an Jiaotong University.

Other Courses

## Course Program

Verify Code	Course
S18777	Business Elite Lectures
S18878	Frontiers in Chemical Engineering Research
S18974	Frontiers in Energy, Environment & Power Engineering Research
S19010	Frontiers in Materials Research
S19140	Frontiers in Medicine
S19216	Innovation and Technology Management in Tourism & Hospitality
S19392	Milano on the Silk Road
S19496	State of the Art Sensor and Actuator Technology