

**CASE WESTERN RESERVE UNIVERSITY  
EAST CLEVELAND PUBLIC SCHOOL DISTRICT  
PROVOST SCHOLARS  
Intensive University Seminar: Session Thirteen, Spring 2017  
Thursday, February 9, 2017  
2:30-5:00pm  
Guilford House, 11112 Bellflower Road, Cleveland, OH 44106**

**Seminar Title:** *Changing Our Lives: Examples from the Physical Sciences*

### **Purpose**

Dr. Petschek will present several examples of how the physical sciences have, in the last century, dramatically changed how people live on a daily basis. He will emphasize the physical sciences, particularly physics, and how it has aided in the advancement of the cell phone and other technologies.

### **Presenter Biography**



Rolfe Petschek, PhD, is a theoretical physicist and an Associate Professor in the Physics Department at Case Western Reserve University (CWRU). His expertise is in light and heat, and, specifically, how light can be applied for practical everyday use. Among his numerous patents, are liquid crystals that are used to create electric fields that are needed to construct flat panels. He also has expertise in pure and applied sciences – both by understanding what makes things “tick” and how practical devices are created. He appreciates languages, exploring new ethnic cuisines, and outdoor activities such as hiking and gathering wild mushrooms, all of which he enjoys with his wife and daughter. Dr. Petschek received his BS degree from the Massachusetts Institute of Technology (MIT) and his doctoral degree from Harvard University, both of which are in Boston, MA.

### **Objectives**

The Provost Scholars will:

1. Discuss physics principles associated with snow, passive liquid crystal windows, and wet tee shirt contests.
2. Describe technological innovations that are used to improve the lives of people: Magnetic resonance imaging (MRI), X-Rays, and cell phones are examples of how physical science continues to improving our lives.

### **Agenda**

2:30 p.m. – 2:40 p.m.: Hors d'oeuvres will be served

2:40 p.m. – 3:55 p.m.: Tutoring

3:55 p.m. – 4:00 p.m.: Brief Intermission

4:00 p.m. – 5:00 p.m.: Seminar Lecture and Discussion, Dr. Rolfe Petschek

### **Faculty & Staff**

- Dr. Faye Gary, Program Director
- Cicely Philpot, Program Coordinator
- Haruna Sulemana, Master's Student, Program Assistant
- CWRU Tutors

### **Guest**

- Dr. Rolfe Petschek, CWRU Professor of Physics and a Provost Scholars Mentor

**Word of the Week: Quantum theory** (adj., n.). A theory in physics based on the knowledge that energy is made of small separate units of energy. Source: Adapted from *Merriam-Webster Dictionary Online*, <https://www.merriam-webster.com/dictionary/quantum%20theory>.

**Sentence:** *Professor Petschek helped the Provost Scholars to understand **quantum theory** by conducting hands-on experiments using light.*

**Concierge and Maître d':** LaQuin Lewis and Jason Sanders