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### **Chalcogenide semiconductors for energy applications**

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Materials discovery and research into the fundamental mechanisms at work in new materials development drives new technology, and vice versa. Chalcogenide semiconductors could be important components of several next-generation energy-related devices: as transparent conductors or channel layer in thin-film transistors or transparent transistors, as *p*-type membranes and absorbers in solar cells, and as light emitters in LEDs. I will discuss the wider challenges in some of these applications, why this particular materials set is relevant, the broad skills and collaborative effort necessary for success in this type of research, and some new results from the OSU collaboration. This work is partially supported by the National Science Foundation under DMR1035513.