**Idaho State University  
Physics Colloquium**

***The Future of Gravitational Wave Astronomy***  
  
Dr. Joey Key  
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Recent discoveries of black hole mergers and the collision of neutron stars by the Laser Interferometer Gravitational wave Observatory (LIGO) have opened up the era of gravitational wave astronomy and multi-messenger astronomy. The Advanced LIGO detectors have completed their third observing run (O3), sharing real-time public alerts with astronomers around the world. Beyond Advanced LIGO, the future of gravitational wave astronomy includes the European Space Agency (ESA) and NASA Laser Interferometer Space Antenna (LISA) mission. Meanwhile, Pulsar Timing Arrays (PTAs) such as the North American Nanohertz Observatory for Gravitational waves (NANOGrav) are poised to make detections of gravitational waves in the nanohertz range. The historic first detections of gravitational waves have opened a new way to study our universe, with discovery potential across the entire gravitational wave spectrum.

**Monday, March 22 2021**  
**Via Zoom(**[**https://isu.zoom.us/j/84746625588**](https://isu.zoom.us/j/84746625588)**)  
4:00 – 4:50 pm**