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Future Science Capabilities Enabled by the Upgraded APS

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The Advanced Photon Source (APS) is a 7 GeV electron storage ring located at Argonne National Laboratory that has, since 1995, produced bright synchrotron x-ray beams to enable 1,000s of users from a wide variety of scientific backgrounds to pursue new knowledge about the structure and function of materials. A major upgrade is being planned to this facility, so-called APS-U, that will improve key capabilities at the APS by a factor of 100 or more. In my talk, I will provide a brief overview of the APS today and describe important features of the APS upgrade. As part of the proposed upgrade, several beamlines will either be rebuilt or undergo major enhancements to provide world-leading capabilities with, for example, focused x-rays or coherent x-rays. I will provide an overview of these beamlines and the new science opportunities that they will enable.