The Diamond Upgrade; Diamond-II

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Diamond has established itself in over ten years of operation as a world-class synchrotron, enabling research by leading academic and industrial groups in physical and life sciences. However, the technology for light sources, including detectors, optics and scientific computing, is developing at a tremendous pace and Diamond must take advantage of this if it is to continue to provide first-class opportunities to meet the scientific and societal challenges of the future.

We are investigating several paths for a possible upgrade to Diamond. This is driven by a joint assessment of the science capabilities opened by a very low emittance ring and the machine design that will underpin them. This presentation outlines plans for a new storage ring to be built within the existing footprint and offering more than a 20-fold increase in brightness, with much enhanced coherence. In addition the MBA machine design gives the potential to introduce more high performance insertion device beamlines, replacing what were bending magnet beamlines with a new tailored ID's as well as providing flexibility for implementing new beamlines to be installed to allow for a future increase in capacity.