

Alignment of the South Straight Section Undulator Switch Yard at the Duke Free Electron Laboratory

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Duke Free Electron Laser Laboratory (DFELL) located on the campus of Duke University is a dedicated facility for tunable free electron lasers. In this article, a novel design and alignment technique will be presented as part of our recent upgrade to the south straight section of the DFELL storage ring beamline. This assembly consists of a 14.5 meters long kinematic platform which is capable of accommodating two pairs of linear and helical undulators, and a pair of buncher magnet. The Kinematic design has the provision of sliding the entire assembly on a series of linear sliding guide rails in perpendicular direction to the beamline. This will enable us to couple each pair of these undulators with the already existing two helical undulators to achieve lower FEL lasing wavelength and higher Gamma Ray beams energy.

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