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ADVANCED PULSED-LASER DEPOSITION SYSTEM FOR ARPES APPLICATIONS

Film growth by pulsed-laser deposition (PLD) has seen so far relatively few uses for electronic structure studies by ARPES, mainly because of the surface degradation occurring during the transfer from the growth chamber to the measurement chamber. Conventional techniques of capping and in-vacuum surface regeneration have never been completely satisfactory either, leaving the possibilities of a connection between ARPES and PLD largely unexplored. During the first year of operation of the new PLD apparatus developed on beamline 7.0.1 at the ALS, we have shown the potential of *in situ* film growth for ARPES. This goes well beyond the traditional studies of strain effects on the band structure of thin films, and includes engineered heterostructures, which do not have a bulk counterpart, and materials that do exist in bulk form, but cannot be synthesized in crystals of sufficient quality or size to be measured in photoemission.

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