

Fundamental Surface Science and Engineering Issues for High Gradient X-Band Structures at KEK

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Since 1990, KEK has been studying the X-band accelerating structure fabrication technologies and has been strongly collaborating with SLAC. So far high gradient and wake field performance tests were carried out with both laboratories. Currently such items are being studied as various materials, surface preparation and assembly technologies in order to understand what determines breakdown performance and pulse heating damage. Especially the microscopic study on materials and surface preparations are experimentally performed. After realization of the high gradient accelerating structure, an order of a few ten thousands structure sections must be manufactured with cost effectively for the construction of a TeV energy range accelerator. In this presentation I will present a summary of the fabrication efforts at KEK for the high gradient structures and a future perspective of accelerating disk/quadrant fabrication technologies.

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Session Classification: Plenary Session (Chair S. Chattopadhyay)