

## Research and Achievements on X-band accelerator structures at LNF

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The next generation of linear accelerators is highly demanding in terms of accelerating gradients. To upgrade performances of X band Linacs at 11.424 GHz many resources are devoted to achieve higher accelerating gradients and at the same time obtain the highest possible reliability. In the framework of a large collaboration among SLAC (USA), KEK (Japan) and INFN-LNF, our laboratories have been involved in the design, manufacture and test of short high power standing wave (SW) sections operating at 11.424 GHz. In particular, because electroforming is a very attractive technique to manufacture compact structures avoiding the soft brazing while maintaining mechanical properties and high vacuum requirements, recently an electroformed SW structure has been also realized and tested at room temperature.

Among other R&D activities, characterization and tests of molybdenum coatings are in progress. Copper coated by molybdenum via sputtering under vacuum is another promising approach to increase the accelerating gradient of RF cavities working at higher frequencies.

In this contribution we present the status of the different activities on high gradient SW electroformed structures, the first measurement on high frequency hybrid accelerators and the characterization of thick molybdenum coatings.

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