

# thinfilms and NEW IDEAS for SRF

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## Plasma cleaning for LCLS-II cavities

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Field emission is one the major limitations to the maximum usable accelerating gradient of SRF cavities in cryomodules. Taking advantage of the plasma chemistry, field emitting and decreasing the field emission. A collaboration between FNAL, SLAC and ORNL was established to develop a plasma processing system capable to minimize and overcome the problem of field emission in LCLS-II cryomodules. The plasma processing system is inspired to the one already built at the Spallation Neutron Source (SNS), that is capable to process in-situ cavities from hydrocarbon contaminants, by means of a neon-oxygen reactive plasma mixture. Here we present an innovative approach needed to ignite reliably the plasma in LCLS-II cavities, using a mixture of high order modes. In addition, the first results obtained on contaminated samples and single-cell cavities are shown together with the future plan of the project.

### Summary

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