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Optimization of High Temperature N2 Doping for Minimization of Sensitivity to Trapped Flux and Maximization of Quench Fields

Friday 9 November 2018 10:18 (12 minutes)

We will describe Fermilab experiments that focus on the optimization of doping parameters to achieve low sensitivity to magnetic flux while maintaining very high Q characteristic of nitrogen doped cavities and same or higher quench fields. One of the directions pursued is using lighter doping recipes which have been shown in the past to increase the mean free path of the resonator and decrease the sensitivity to magnetic flux; moreover, a correlation has been found between lighter doping and higher quench fields, while maintaining sufficiently low surface resistance. We will describe new progress obtained via new doping recipes, explored partially in the context of the LCLS-2 high energy upgrade

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