

Testing Fast Flowing Liquid Metal as a PFC at NSTX-U Divertor

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- We have proposed to DoE to do
 - a) Establish fast liquid metal channel flow across magnetic field in divertor-like geometry
 - b) Characterize heat transfer properties of free-surface liquid metal pool and flow
 - c) Study electromagnetic effects of side walls channel flow
- If funded, we can follow the development path of a) → b) → c) → RDM to test and implement the idea of using flowing liquid metal to remove heat.
- If unfunded, we can use (limited) knowledge and expertise from LMX (Liquid Metal Experiment) and from UCLA to design and construct a liquid metal loop in RDM.
- If no RDM, the only possible option is to modify a section of divertor area to implement flowing liquid metal PFC, which should be much more “disruptive” to other activity at NSTX-U.