

Seminar

Institute for Plasma Research

Title: MOLFLOW+ tools for UHV System

Speaker: Dr. Sabbir Ahmed

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Date: 28th May 2021 (Friday)

Time: 04:00 PM

Venue: Online- Join the talk:

https://meet.ipr.res.in/PDF_Extension_Talk_SABBIRAHMED

Abstract:

The present work describes the Simulation of pressure, impingement rate, and density in a UHV system using MOLFLOW+ tools. MOLFLOW+ is a test particle Monte Carlo simulation technique used only for the UHV system. Using MOLFLOW, a model of UHV system is created having all the basic parameters like leak rate, outgassing rate, adsorption, pumping speed etc. The description and working principle of MOLFLOW+ is also presented in the current work. The presentation also describes benchmarking of MOLFLOW+ and compares the pressure value with the analytical method and finite element analysis method. Finally, MOLFLOW is also used to highlight detection of leak in a UHV system. Three different leak rates are introduced into the UHV system in two separate locations. In each location, the pressure, impingement rate, and density are measured. The values of the pressure, impingement rate, and density show less when the leak finds near the pump area. However, when the leak locates away from the pump, the values of the pressure, impingement rate, and density more. The present work concludes that the MOLFLOW+ tools are a useful tool. It helps to solve many complicated problems on the UHV system.
