

Effect of sorbent selection and geometrical arrangement of cryopanel on pumping speed of cryopump

Wednesday 24 October 2018 08:30 (20 minutes)

Vacuum is an inherent part of any Fusion machine. The requirement of providing large pumping speed is growing as fusion science is progressing towards high temperature, high density, and large confinement machines. In its domestic programme of development of technologies for Fusion grade machines, Institute for Plasma research (IPR) developed the sorbent based cryopumps. Using coconut shell charcoal pumping speed of 2 l/s/cm² for helium and 5 l/s/cm² for hydrogen is demonstrated. Different sorbents are under study for their performance of pumping speed, for example carbon cloth and flocked carbon panels. Experimental study of pumping speed is being carried for different geometrical configurations of panel arrangements. MOLFLOW+ is used for simulating the pumping speed. Initial experiments are being carried out at 80 K and compared with MOLFLOW+ results. This paper discusses in detail simulation and experimental results of developed pumps

Country or International Organization

India

Paper Number

FIP/P3-54

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Session Classification: P3 Posters

Track Classification: FIP - Fusion Engineering, Integration and Power Plant Design