

Proposal Code : PDF – FusionTech -0004	
<b>Title</b>	Investigation of Cs dynamics in Long tube-based Cs delivery system for INTF Beam source
<b>Abstract</b>	<p>DNB system is mandated to deliver 100 keV, 60 A H<sup>o</sup> beam for the diagnosis of reaction rate in ITER tokamak. Achieve 60 Amp neutral beam current is the prime challenge of the system. Cs acts as a catalyst to produce high current. To achieve high current of -ve ion beam, Cs is injected in the source which lower the work function of PG wall and helps in producing higher -ve ions during plasma-wall interaction. This -ve ion current is accelerated and neutralized. Remote handling compatible design of Cs delivery system is adding further complexity to the configuration.</p> <p>The most challenging part is Cs dynamics in this long delivery tube and its performance. To develop this understanding, a prototype experiment of INTF &amp; DNB equivalent Cs delivery system will be designed and operated.</p> <p>The findings from this study will offer an understanding Cs transport in long and distributed delivery tubes, its measurement, Cs layers deposition on the surface and its dynamics will be studied in detail. Cs delivery simulation will be performed, followed by experimental study.</p>
<b>Research Focus Areas</b>	<p>Simulation of Cs delivery in distribution tube will give insight of Cs dynamics in Beam injector systems.</p> <p>The experiment will be performed to validate the simulated results.</p> <p>Cs deposition in various area depending on its dynamics will be studied using various characterization techniques.</p>
<b>Qualifications</b>	PhD in Physics with expertise in Monte Carlo simulation
<b>Desired Experience</b>	Previous work on fluid dynamics and related simulation would be helpful
<b>Other remarks</b>	-