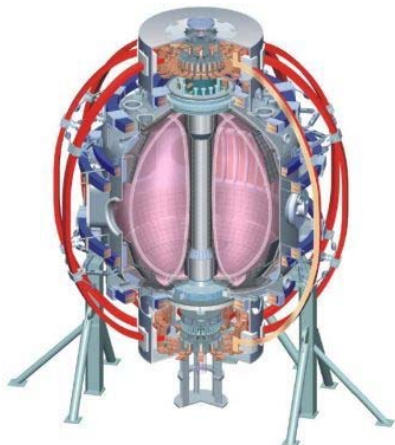


# Can Injected Lithium Granules Trigger ELMs ?

**D.K. Mansfield, A.L. Roquemore, H.K. Kugel (PPPL), L.R. Baylor, R. Maingi (ORNL), P. Parks & Wen Wu (GA)**

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 CEA, Cadarache  
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 IPP, Garching  
 ASCR, Czech Rep  
 U Quebec

# Calculated Pedestal Deposition for 1 mm Li Granules with Injection Speeds from 30 m/s to 100 m/s

• Linear Temperature and Density Profiles Assumed for Pedestal:

$T_e(r/a = 1) = 0$

$T_e(r/a = 0.94) = 1 \text{ keV}$

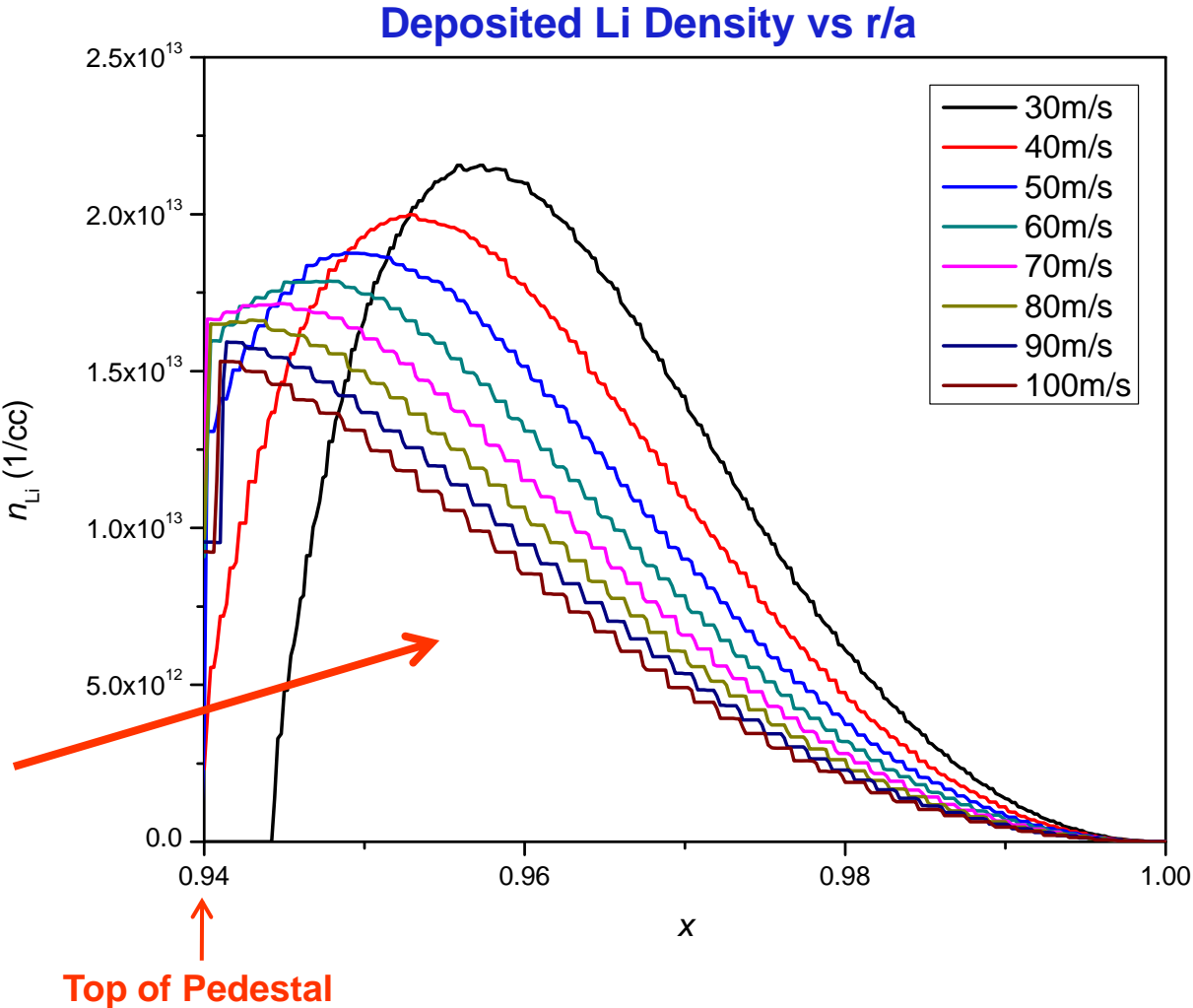
$n_e(r/a = 1) = 0$

$n_e(r/a = 0.94) = 5 \times 10^{13} \text{ cm}^{-3}$

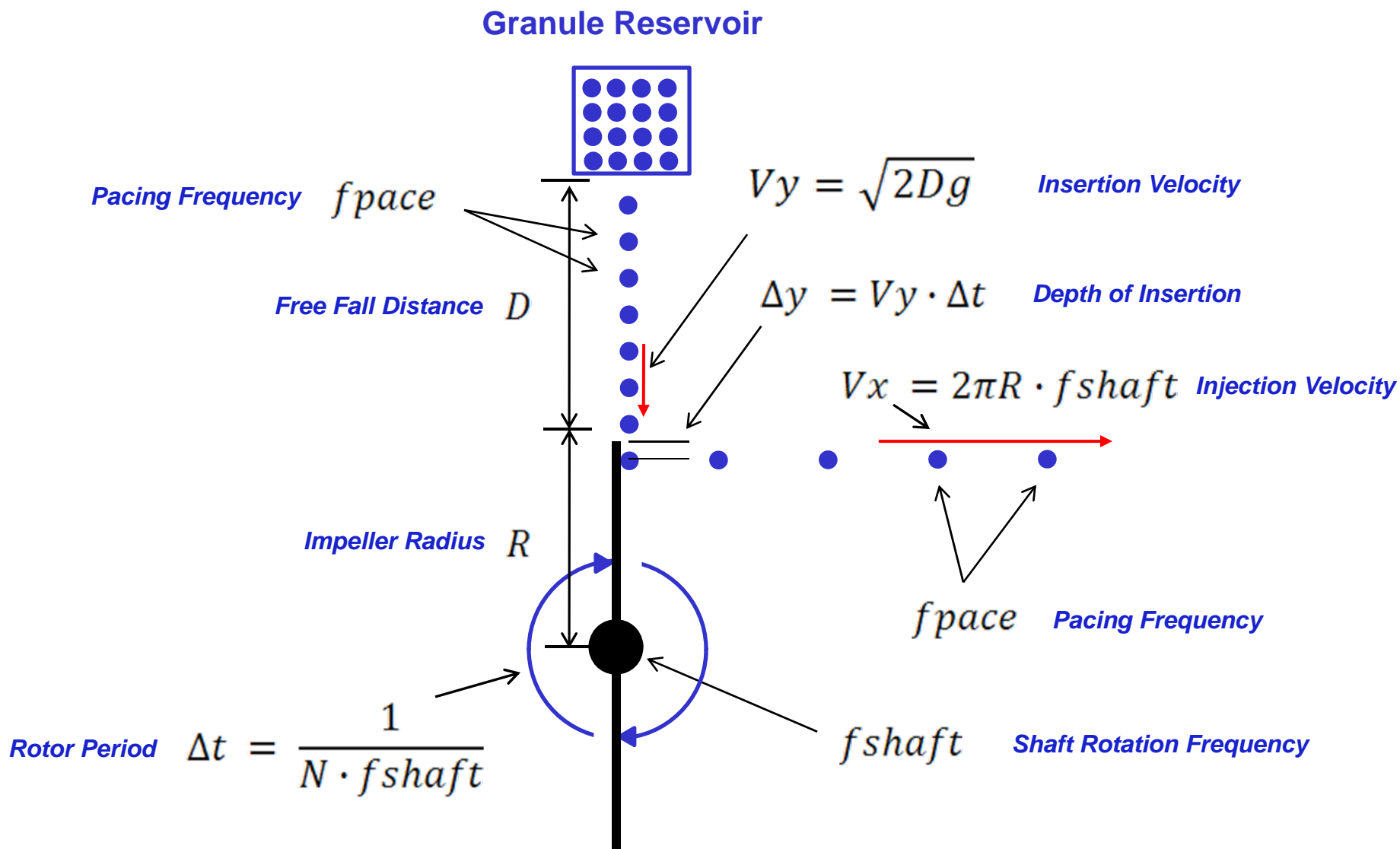
• Reasonable Approximation to DIII-D Pedestal  $R = 1.67 \text{ m}$   
 $a = 0.65 \text{ m}$

• Neutral Gas Shielding Ablation Model for Li Employed

• Results Similar to D Pellet Ablation Which Does Trigger ELMs on DIII-D



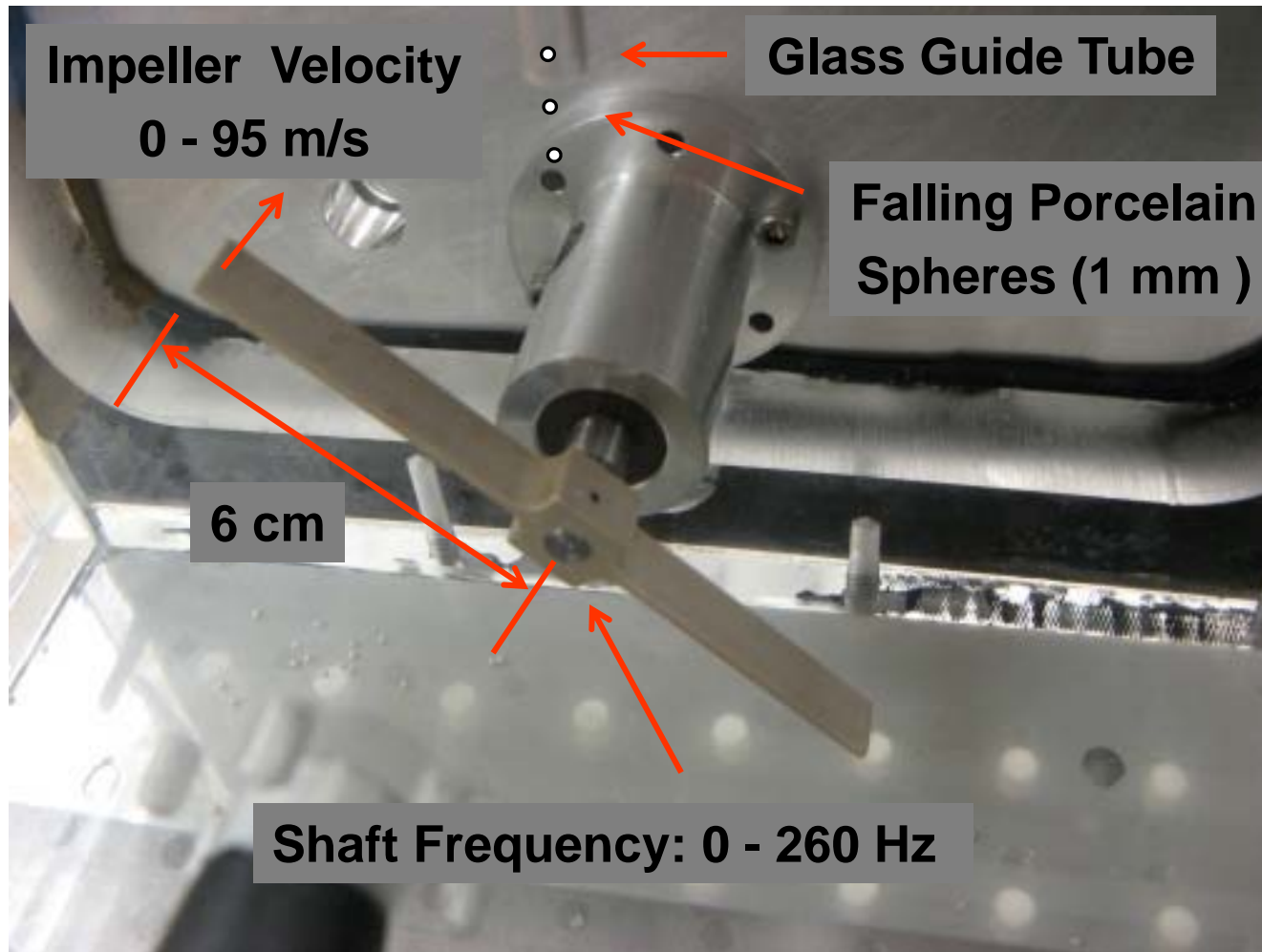
# The Scheme: Redirecting a Regular Stream of Falling Lithium Granules with a Rotating Impeller



# The Prototype Impeller:

**Material: Peek, Radius: 6 cm, Velocity 0 - 95 m/s**

- Presently driven by small electric motor – eventually to be driven by air motor



# Li Granule Injector Footprint

(Can be Available for 2011 Run)

