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## Simulation study of interaction between runaway electron generation and resistive MHD modes over avalanche timescale

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### Highlight

- Multi-timescale simulation of runaway generation incl. seed generation during **thermal quench (0.1-1ms)** and avalanche growth during **current quench (1-10ms)** with  **$m=1$  resistive kink instability (10-100 $\mu$ s)**.
- Resistive kink radially redistributes small seed currents and limits concentration of beam current on axis. Runaway current is amplified with such a seed profile.
- Flat beam current profile over beam radius is maintained on avalanche timescale.

→ *Our new simulation points out that resistive MHD mode in TQ phase is a possible mechanism governing current profile of runaway electrons.*

Fig. 1 Resistive kink yields flattening of small seed currents of 0.1-1 % of ohmic current.

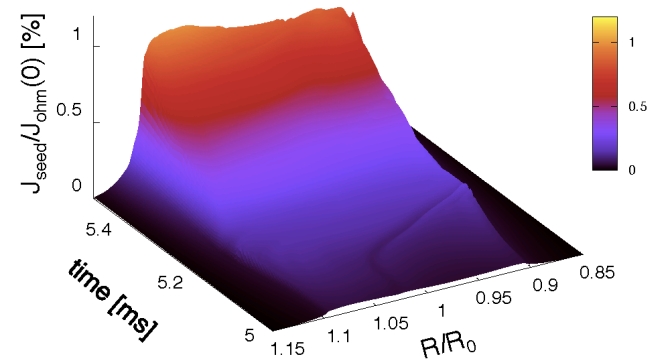


Fig. 2 Runaway current and  $q$  profile after avalanche "inherits" profile modification to small seed currents

