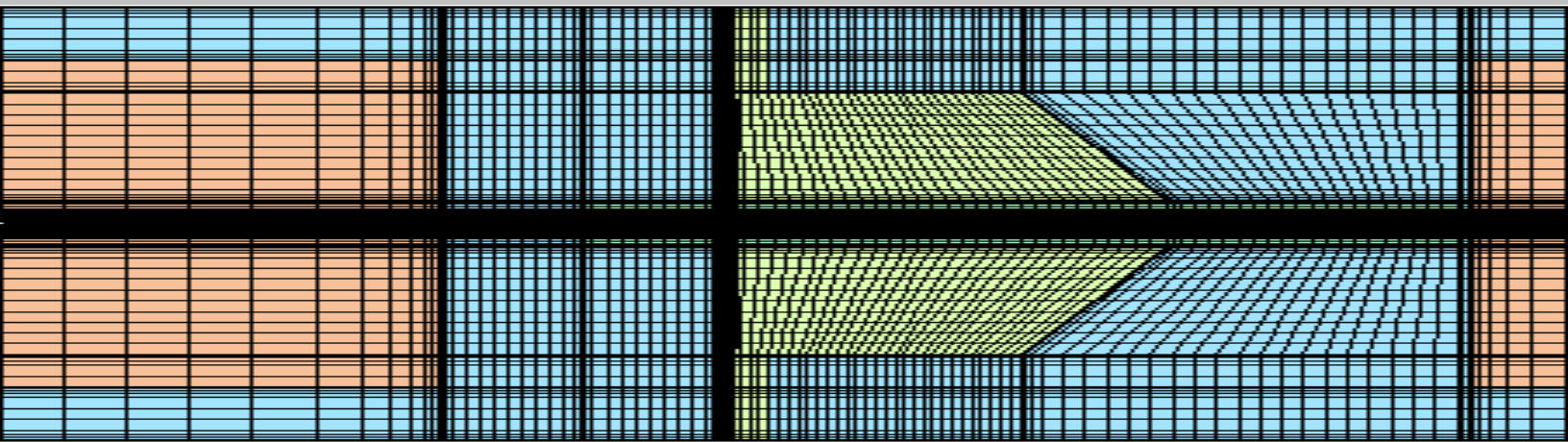


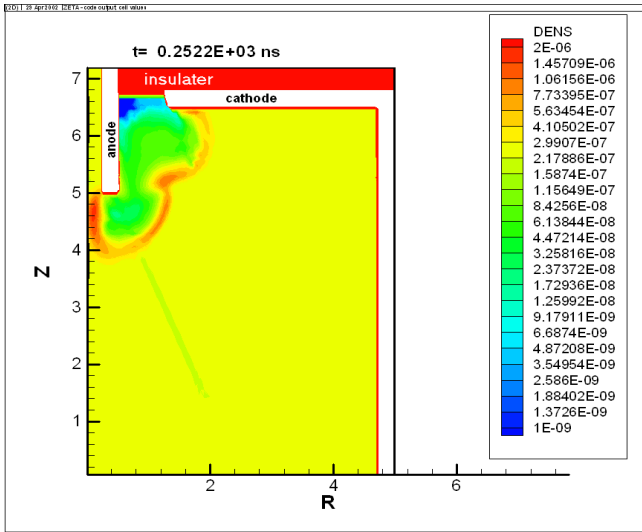


CODE Z 

2-D RADIATION MAGNETO- HYDRO-DYNAMIC SIMULATIONS

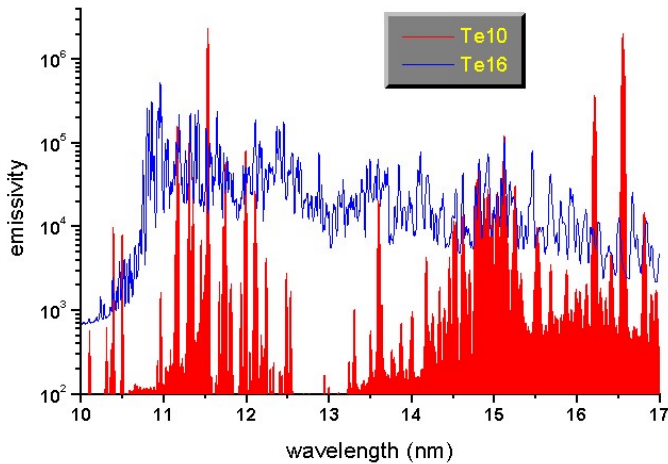
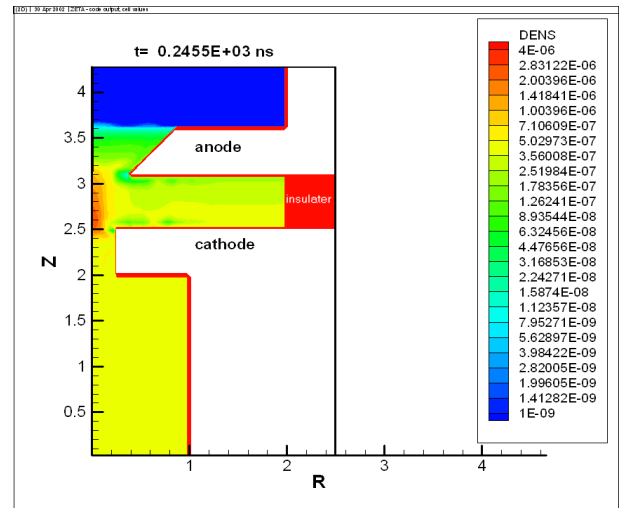


- **PRE-PROCESSOR**
 - Handles LTE and non-LTE of complex materials through dedicated EOS and plasma properties tables
 - Provides geometrically adaptive grid construction
- **CORE-PROCESSOR**
 - Full 2-D radiation MHD code with grid reconstructions in fully conservation Lagrange-Euler scheme
 - Multi-group radiation transport
- **POST-PROCESSOR**
 - 3-D radiation transport
 - Detailed radiation spectra
 - Links to 3rd party data formats



Simulation of a dense plasma focus discharge in a low-z gas pinching onto a high-z gas jet; the hollow center electrode anode extends downward to the 5-cm position. Discharge was initiated by a pre-ionization channel entering at the 6-cm axial position leading to the high-density profile in the breach of the DPF discharge. Note the faint density reduction along a 56-degree cone at the boundary of the low-Mach number, high-z jet due to absorption of radiation from the higher temperature current sheath.

Example of pinch stage in a hollow cathode discharge triggered by a pre-ionized, 0.5 mm diameter axial channel. Close observation reveals that the discharge has been “crow-barred” by current flowing along the outer insulator, an outcome caused by surface desorption of the early radiation emission.



Spectra are generated by post-processor using the THERMOS Code (KIAM RAS) spectral database for the selected species and temperature range of the plasma properties calculated. Example shows the emission from a Xe seeded He plasma at an electron temperature T_e of 10 eV and 16 eV.

Applications of Code Z* to customer specific radiation sources are available from ER2S, Inc., in association with eppra, sas.



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