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**Hollow Current Profiles During Discharge Initiation  
and Fast Current Ramps in the DIII-D Tokamak<sup>1</sup>**

T.S. TAYLOR, D.A. HUMPHREYS, L.L. LAO, General Atomics, B.W. RICE, Lawrence Livermore National Laboratory, R. WOLF, IPP Garching — Hollow current profiles with negative central magnetic shear are formed during discharge initiation in the DIII-D tokamak. The current profile evolution was evaluated as the initial current level was varied systematically from 0.3 to 1.2 MA, by varying the duration of the applied breakdown electric field of  $\approx 0.8$  V/m. The current profile is determined from equilibrium reconstruction, including internal field pitch from a 35 chord motional Stark effect measurement. The current profile during and immediately following the initial ramp is extremely hollow with very high  $q(0)$ ,  $q(0) > 20$ , and the minimum in  $q$ ,  $q_{\min}$ , located at  $\rho > 0.9$ , with the internal inductance less than  $\approx 0.3$ . Attempts to obtain an internal transport barrier with the larger radius of  $q_{\min}$  were hampered by the appearance of MHD as the current profile at the edge rapidly evolved and  $q_{\min}$  passed through rational values. The current profile evolution is being modeled with DINA and ASTRA.

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- Prefer Oral Session  
 Prefer Poster Session

T.S. Taylor  
taylor@gav.gat.com  
General Atomics

Special instructions: DIII-D Poster Session I (transport, turbulence, & stability), immediately following M. Okabayashi (of PPPL)

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