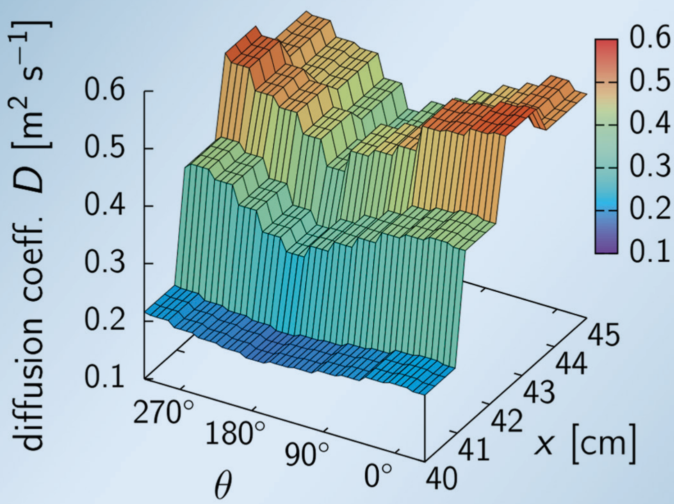
Development and Application of a Multiscale Model for the Magnetic Fusion Edge Plasma Region

Felix Martin Michael Hasenbeck



$$\frac{\partial n_0}{\partial t} + \boldsymbol{\nabla} \cdot \left[n_0 \boldsymbol{u}_{\parallel 0} - D(\langle \widetilde{n} \boldsymbol{v}_{\mathrm{E}} \rangle) \boldsymbol{\nabla}_\perp n_0 \right] = S_{0in}^{ic}$$

$$\left(\frac{\partial}{\partial t} + \boldsymbol{v}_{\mathrm{E}} \cdot \boldsymbol{\nabla}_\perp \right) \widetilde{n} = -\boldsymbol{v}_{\mathrm{E}} \cdot \boldsymbol{\nabla}_\perp n_0 + \frac{T_{0e}}{e} \mathcal{K}(\widetilde{n}) - n_0 \mathcal{K}(\phi) - n_0 B_0 \left(\nabla_{\parallel 0} + \widetilde{\nabla}_\parallel \right) \left(\frac{u_\parallel}{B_0} - \frac{j_\parallel}{e n_0 B_0} \right) + \gamma(\widetilde{n})$$

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