

STELLARATOR FIELDS WITH SMALL PS CURRENT AT SMALL ROTATIONAL TRANSFORM

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One aspect of the optimization concept of stellarators is the reduction of the normalized Pfirsch-Schlüter current density $\langle j_{\parallel}^2 / j_{\perp}^2 \rangle^{1/2}$ to a reasonable level but obeying other side conditions, e.g., concerning small bootstrap currents, good stability properties, reasonable aspect ratio, etc. This problem is addressed in the present work. Various stellarator vacuum fields are given analytically for $M = 2, 3, 5, 10, 12$ (M is the number of field periods around the torus) where the PS-current density is reduced by more than a factor of ten to rather small values around 0.3 even at small η -values.