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Beam ion acceleration by ICRH in JET discharges R.V. BUDNY, Retired, M. GORELENKOVA, N. BERTELLI, PPPL, JET COLLABORATION¹ — The ion Monte-Carlo orbit integrator NUBEAM, used in TRANSP has been enhanced to include an “RF-kick” operator to simulate the interaction of RF fields and fast ions. The RF quasi-linear operator (localized in space) uses a second R-Z orbit integrator. We apply this to analysis of recent JET discharges using ICRH with the ITER-like first wall. An example of results for a high performance Hybrid discharge for which standard TRANSP analysis simulated the DD neutron emission rate below measurements, re-analysis using the RF-kick operator results in increased beam parallel and perpendicular energy densities ($\simeq 40\%$ and 15% respectively), and increased beam-thermal neutron emission ($\simeq 35\%$), making the total rate closer to the measurement. Checks of the numerics, comparisons with measurements, and ITER implications will be presented. Supported in part by the US DoE contract DE-AC02-09CH11466 and by EUROfusion No 633053.

¹See the Appendix of F. Romanelli et al., Proceedings of the 25th IAEA Fusion Energy

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