Core plasma ion cyclotron emission driven by fusion-born ions

Ion cyclotron emission (ICE) signals whose spectral peaks match the fundamental cyclotron frequencies of hydrogen and tritium in the plasma core, near the magnetic axis, are observed in ASDEX Upgrade deuterium plasmas. In these cases the only source of energetic (1 MeV) hydrogen and tritium ions is D-D fusion reactions between neutral beam injected deuterium ions and bulk deuterium ions. Hydrogen-matched core ICE is observed in a wide variety of ASDEX Upgrade plasmas, while tritium-matched core ICE is (so far) only observed in so-called H-mode density limit plasmas. In all cases ICE signals are detected directly using B-dot probes, which provide information on the emission frequency, the amplitude, and, in principle, the parallel wavenumber values. These observations support the idea of using an ICE-based diagnostic to monitor the presence of fusion-born alpha particles in tritium-burning fusion plasmas on devices such as JET, ITER, CFETR, or DEMO.
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 3.78 SJR 2.043 SNIP 2.433
Web of Science (2011): Impact factor 4.09
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 2.268 SNIP 1.927
Web of Science (2010): Impact factor 3.303
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.993 SNIP 2.441
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 2.031 SNIP 1.736
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 2.005 SNIP 1.987
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 2.062 SNIP 1.937
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.885 SNIP 1.932
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 2.647 SNIP 1.673
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 2.215 SNIP 1.673
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.275 SNIP 1.409
Scopus rating (2001): SJR 2.159 SNIP 2.173
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 1.843 SNIP 1.104
Scopus rating (1999): SJR 1.99 SNIP 1.496
Original language: English
Keywords: ICRF Waves, Ion cyclotron emission, Tokamak plasmas
DOI:
10.1088/1741-4326/aaebb0
Source: FindIt
Source-ID: 2440950350
Research output: Research - peer-review › Letter – Annual report year: 2019