

[Inici](#) > BSC Fusion Team publishes a paper in *Physics of Plasmas* on novel technique to heat fusion plasmas to high temperatures

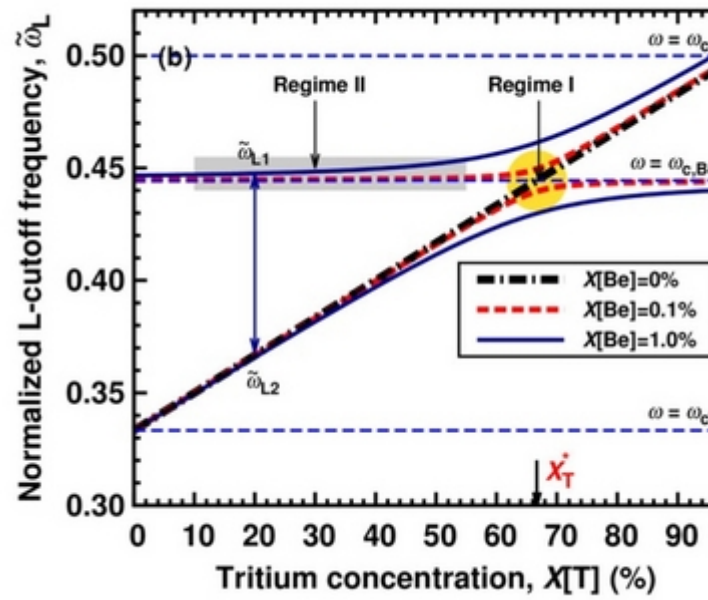
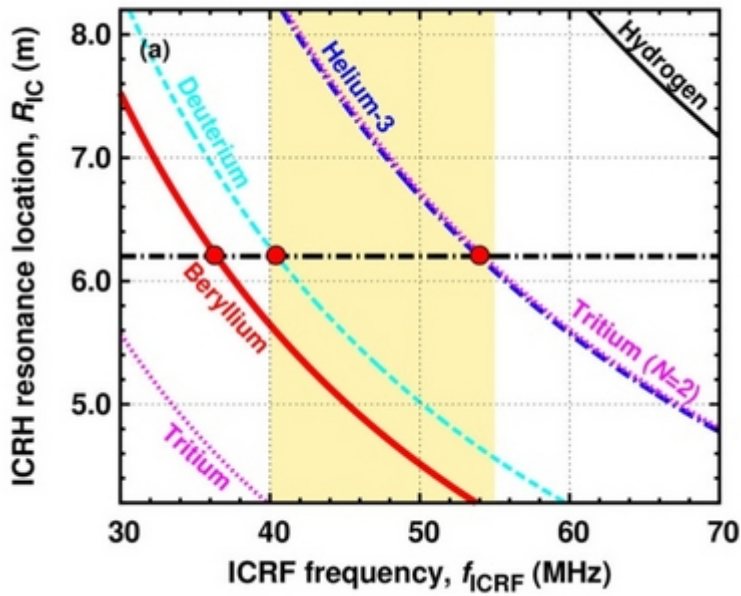
[BSC Fusion Team publishes a paper in *Physics of Plasmas* on novel technique to heat fusion plasmas to high temperatures](#)

[Physics of Plasmas](#), a renowned leading journal in the field of plasma physics and fusion research, has recently published a paper titled [A new ion cyclotron range of frequency scenario for bulk ion heating in deuterium-tritium plasmas: How to utilize intrinsic impurities in our favour](#). This paper reports on a new heating scheme for fusion plasmas and the BSC Fusion Team features among the authors together with other international institutions including LPP-ERM/KMS (Belgium), IPP-Garching (Germany) and CEA/IRFM (France). The authors plan to do some experimental tests of the proposed new scheme in the coming months on the Europe's largest fusion device, the [JET tokamak](#) located near Oxford in the UK, the [ASDEX Upgrade tokamak](#) at Max Planck Institute for Plasma Physics (Garching, Germany) and on the [Alcator C-Mod tokamak](#) located at the Plasma Science and Fusion Center of MIT.

Paper abstract: A fusion reactor requires plasma pre-heating before the rate of deuterium-tritium fusion reactions becomes significant. In ITER, radio frequency (RF) heating of He-3 ions, additionally puffed into the plasma, is one of the main options considered for increasing bulk ion temperature during the ramp-up phase of the pulse. In this paper, we propose an alternative scenario for bulk ion heating with RF waves, which requires no extra He-3 puff and profits from the presence of intrinsic Beryllium impurities in the plasma. The discussed method to heat Be impurities in D-T plasmas is shown to provide an even larger fraction of fuel ion heating.

View paper online here: <http://dx.doi.org/10.1063/1.4928880>.

Reproduced with permission from Ye. Kazakov et al. *Phys. Plasmas* 22, 082511 (2015), <http://dx.doi.org/10.1063/1.4928880>.



Barcelona Supercomputing Center - Centro Nacional de Supercomputación

Source URL (retrieved on 16 Mar 2025 - 23:00): <https://www.bsc.es/ca/news/bsc-news/bsc-fusion-team-publishes-paper-physics-plasmas-novel-technique-heat-fusion-plasmas-high>