

Overview of the JET preparation for Deuterium-Tritium Operation

EUROfusion Consortium JET, Culham Science Centre, Abingdon, OX14 3DB, UK

E-mail contact of the main author: emmanuel.joffrin@euro-fusion.org

E. Joffrin⁸, S. Abduallev³⁹, M. Abhangi⁴⁶, P. Abreu⁵³, M. Afzal⁷, K.M. Aggarwal²⁹, T. Ahlgren¹⁰¹, J.H. Ahn⁸, L. Aho-Mantila¹¹², N. Aiba⁶⁹, M. Airila¹¹², R. Albanese¹⁰⁵, V. Aldred⁷, D. Alegre⁹³, E. Alessi⁴⁵, P. Aleynikov⁵⁵, A. Alfier¹², A. Alkseev⁷², M. Allinson⁷, B. Alper⁷, E. Alves⁵⁵, G. Ambrosino¹⁰⁵, R. Ambrosino¹⁰⁶, L. Amicucci⁹⁰, V. Amosov⁸⁸, E. Andersson Sundén²², M. Angelone⁹⁰, M. Anghel⁸⁵, C. Angioni⁶², L. Appel⁷, C. Appelbee⁷, P. Arena³⁰, M. Ariola¹⁰⁶, H. Arnichand⁸, S. Arshad⁴¹, A. Ash⁷, N. Ashikawa⁶⁸, V. Aslanyan⁶⁴, O. Asunta¹, F. Auriemma¹², Y. Austin⁷, L. Avotina¹⁰³, M.D. Axton⁷, C. Ayres⁷, M. Bacharis²⁴, A. Baciero⁵⁷, D. Baião⁵³, S. Bailey⁷, A. Baker⁷, I. Balboa⁷, M. Balden⁶², N. Balshaw⁷, R. Bament⁷, J.W. Banks⁷, Y.F. Baranov⁷, M.A. Barnard⁷, D. Barnes⁷, M. Barnes²⁷, R. Barnsley⁵⁵, A. Baron Wiechec⁷, L. Barrera Orte³⁴, M. Baruzzo¹², V. Basiuk⁸, M. Bassan⁵⁵, R. Bastow⁷, A. Batista⁵³, P. Batistoni⁹⁰, R. Baughan⁷, B. Bauvir⁵⁵, L. Baylor⁷³, B. Bazylev⁵⁶, J. Beal¹¹⁰, P.S. Beaumont⁷, M. Beckers³⁹, B. Beckett⁷, A. Becoulet⁸, N. Bekris³⁵, M. Beldishevski⁷, K. Bell⁷, F. Belli⁹⁰, M. Bellinger⁷, É. Belonohy⁶², N. Ben Ayed⁷, N.A. Benterman⁷, H. Bergsaker⁴², J. Bernardo⁵³, M. Bernert⁶², M. Berry⁷, L. Bertalot⁵⁵, C. Besliu⁷, M. Beurskens⁶³, B. Bieg⁶¹, J. Bielecki⁴⁷, T. Biewer⁷³, M. Bigi¹², P. Bílková⁵⁰, F. Binda²², A. Bisoffi³¹, J.P.S. Bizarro⁵³, C. Björkas¹⁰¹, J. Blackburn⁷, K. Blackman⁷, T.R. Blackman⁷, P. Blanchard³³, P. Blatchford⁷, V. Bobkov⁶², A. Boboc⁷, G. Bodnár¹¹³, O. Bogar¹⁸, I. Bolshakova⁶⁰, T. Bolzonella¹², N. Bonanomi⁹⁷, F. Bonelli⁵⁶, J. Boom⁶², J. Booth⁷, D. Borba^{35,53}, D. Borodin³⁹, I. Borodkina³⁹, A. Botrugno⁹⁰, C. Bottereau⁸, P. Boulting⁷, C. Bourdelle⁸, M. Bowden⁷, C. Bower⁷, C. Bowman¹¹⁰, T. Boyce⁷, C. Boyd⁷, H.J. Boyer⁷, J.M.A. Bradshaw⁷, V. Braic⁸⁷, R. Bravanec⁴⁰, B. Breizman¹⁰⁷, S. Bremond⁸, P.D. Brennan⁷, S. Breton⁸, A. Brett⁷, S. Brezinsek³⁹, M.D.J. Bright⁷, M. Brix⁷, W. Broeckx⁷⁸, M. Brombin¹², A. Broślawski⁶⁵, D.P.D. Brown⁷, M. Brown⁷, E. Bruno⁵⁵, J. Bucalossi⁸, J. Buch⁴⁶, J. Buchanan⁷, M.A. Buckley⁷, R. Budny⁷⁶, H. Bufferand⁸, M. Bulman⁷, N. Bulmer⁷, P. Bunting⁷, P. Buratti⁹⁰, A. Burckhart⁶², A. Buscarino³⁰, A. Busse⁷, N.K. Butler⁷, I. Bykov⁴², J. Byrne⁷, P. Cahyna⁵⁰, G. Calabrò⁹⁰, I. Calvo⁵⁷, Y. Camenen⁴, P. Camp⁷, D.C. Campling⁷, J. Cane⁷, B. Cannas¹⁷, A.J. Capel⁷, P.J. Card⁷, A. Cardinali⁹⁰, P. Carman⁷, M. Carr⁷, D. Carralero⁶², L. Carraro¹², B.B. Carvalho⁵³, I. Carvalho⁵³, P. Carvalho⁵³, F.J. Casson⁷, C. Castaldo⁹⁰, N. Catarino⁵³, J. Caumont⁷, F. Causa⁹⁰, R. Cavazzana¹², K. Cave-Ayland⁷, M. Cavinato¹², M. Ceconello²², S. Ceccuzzi⁹⁰, E. Cecil⁷⁶, A. Cenedese¹², R. Cesario⁹⁰, C.D. Challis⁷, M. Chandler⁷, D. Chandra⁴⁶, C.S. Chang⁷⁶, A. Chankin⁶², I.T. Chapman⁷, S.C. Chapman²⁸, M. Chernyshova⁴⁹, G. Chitarin¹², G. Ciraolo⁸, D. Ciric⁷, J. Citrin³⁸, F. Clairet⁸, E. Clark⁷, M. Clark⁷, R. Clarkson⁷, D. Clatworthy⁷, C. Clements⁷, M. Cleverly⁷, J.P. Coad⁷, P.A. Coates⁷, A. Cobalt⁷, V. Coccoresse¹⁰⁵, V. Cocilovo⁹⁰, S. Coda³³, R. Coelho⁵³, J.W. Coenen³⁹, I. Coffey²⁹, L. Colas⁸, S. Collins⁷, D. Conka¹⁰³, S. Conroy²², N. Conway⁷, D. Coombs⁷, D. Cooper⁷, S.R. Cooper⁷, C. Corradino³⁰, Y. Corre⁸, G. Corrigan⁷, S. Cortes⁵³, D. Coster⁶², A.S. Couchman⁷, M.P. Cox⁷, T. Craciunescu⁸⁶, S. Cramp⁷, R. Craven⁷, F. Crisanti⁹⁰, G. Croci⁹⁷, D. Croft⁷, K. Crombé¹⁵, R. Crowe⁷, N. Cruz⁵³, G. Cseh¹¹³, A. Cufar⁸¹, A. Cullen⁷, M. Curuia⁸⁵, A. Czarnecka⁴⁹, H. Dabirikhah⁷, P. Dalgliesh⁷, S. Dalley⁷, J. Dankowski⁴⁷, D. Darrow⁷⁶, O. Davies⁷, W. Davis^{55,76}, C. Day⁵⁶, I.E. Day⁷, M. De Bock⁵⁵, A. de Castro⁵⁷, E. de la Cal⁵⁷, E. de la Luna⁵⁷, G. De Masi¹², J. L. de Pablos⁵⁷, G. De Temmerman⁵⁵, G. De Tommasi¹⁰⁵, P. de Vries⁵⁵, K. Deakin⁷, J. Deane⁷, F. Degli Agostini¹², R. Dejarnac⁵⁰, E. Delabie⁷³, N. den Harder³⁸, R.O. Dendy⁷, J. Denis⁸, P. Denner³⁹, S. Devaux^{62,104}, P. Devynck⁸, F. Di Maio⁵⁵, A. Di Siena⁶², C. Di Troia⁹⁰, P. Dinca⁸⁶, R. D'Inca⁶², B. Ding⁵¹, T. Dittmar³⁹, H. Doerk⁶², R.P. Doerner⁹, T. Donné³⁴, S.E. Dorling⁷, S. Dormido-Canto⁹³, S. Doswon⁷, D. Douai⁸, P.T. Doyle⁷, A. Drenik^{62,81}, P. Drewelow⁶³, P. Drews³⁹, Ph. Duckworth⁵⁵, R. Dumont⁸, P. Dumortier⁵⁸, D.

Dunai¹¹³, M. Dunne⁶², I. Đuran⁵⁰, F. Durodié⁵⁸, P. Dutta⁴⁶, B. P. Duval³³, R. Dux⁶², K. Dylst⁷⁸,
 N. Dzysiuk²², P.V. Edappala⁴⁶, J. Edmond⁷, A.M. Edwards⁷, J. Edwards⁷, Th. Eich⁶², A.
 Ekedahl⁸, R. El-Jorf⁷, C.G. Elsmore⁷, M. Enachescu⁸⁴, G. Ericsson²², F. Eriksson¹⁶, J.
 Eriksson²², L.G. Eriksson³⁶, B. Esposito⁹⁰, S. Esquembri⁹⁴, H.G. Esser³⁹, D. Esteve⁸, B. Evans⁷,
 G.E. Evans⁷, G. Evison⁷, G.D. Ewart⁷, D. Fagan⁷, M. Faitsch⁶², D. Falie⁸⁶, A. Fanni¹⁷, A.
 Fasoli³³, J. M. Faustin³³, N. Fawlk⁷, L. Fazendeiro⁵³, N. Fedorczak⁸, R.C. Felton⁷, K. Fenton⁷,
 A. Fernades⁵³, H. Fernandes⁵³, J. Ferreira⁵³, J.A. Fessey⁷, O. Février⁸, O. Ficker⁵⁰, A. Field⁷, S.
 Fietz⁶², A. Figueiredo⁵³, J. Figueiredo^{53,35}, A. Fil⁸, P. Finburg⁷, M. Firdaouss⁸, U. Fischer⁵⁶, L.
 Fittill⁷, M. Fitzgerald⁷, D. Flammini⁹⁰, J. Flanagan⁷, C. Fleming⁷, K. Flinders⁷, N. Fonnesu⁹⁰, J.
 M. Fontdecaba⁵⁷, A. Formisano⁷⁹, L. Forsythe⁷, L. Fortuna³⁰, E. Fortuna-Zalesna¹⁹, M.
 Fortune⁷, S. Foster⁷, T. Franke³⁴, T. Franklin⁷, M. Frasca³⁰, L. Frassinetti⁴², M. Freisinger³⁹, R.
 Fresa⁹⁸, D. Frigione⁹⁰, V. Fuchs⁵⁰, D. Fuller³⁵, S. Futatani⁶, J. Fyvie⁷, K. Gál^{34,62}, D. Galassi²,
 K. Gałazka⁴⁹, J. Galdon-Quiroga⁹², J. Gallagher⁷, D. Gallart⁶, R. Galvão¹⁰, X. Gao⁵¹, Y. Gao³⁹,
 J. Garcia⁸, A. Garcia-Carrasco⁴², M. García-Muñoz⁹², J.-L. Gardarein³, L. Garzotti⁷, P.
 Gaudio⁹⁵, E. Gauthier⁸, D.F. Gear⁷, S.J. Gee⁷, B. Geiger⁶², M. Gelfusa⁹⁵, S. Gerasimov⁷, G.
 Gervasini⁴⁵, M. Gethins⁷, Z. Ghani⁷, M. Ghate⁴⁶, M. Gherendi⁸⁶, J.C. Giacalone⁸, L.
 Giacomelli⁴⁵, C.S. Gibson⁷, T. Giegerich⁵⁶, C. Gil⁸, L. Gil⁵³, S. Gilligan⁷, D. Gin⁵⁴, E.
 Giovannozzi⁹⁰, J.B. Girardo⁸, C. Giroud⁷, G. Giruzzi⁸, S. Glöggler⁶², J. Godwin⁷, J. Goff⁷, P.
 Gohil⁴³, V. Goloborod'ko¹⁰², R. Gomes⁵³, B. Gonçalves⁵³, M. Goniche⁸, M. Goodliffe⁷, A.
 Goodyear⁷, G. Gorini⁹⁷, M. Gosk⁶⁵, R. Goulding⁷⁶, A. Goussarov⁷⁸, R. Gowland⁷, B. Graham⁷,
 M.E. Graham⁷, J. P. Graves³³, N. Grazier⁷, P. Grazier⁷, N.R. Green⁷, H. Greuner⁶², B.
 Grierson⁷⁶, F.S. Griph⁷, C. Grisolia⁸, D. Grist⁷, M. Groth¹, R. Grove⁷³, C.N. Grundy⁷, J.
 Grzonka¹⁹, D. Guard⁷, C. Guérard³⁴, C. Guillemaut^{8,53}, R. Guirlet⁸, C. Gurl⁷, H. H Utoh⁶⁹, L.J.
 Hackett⁷, S. Hacquin^{8,35}, A. Hagar⁷, R. Hager⁷⁶, A. Hakola¹¹², M. Halitovs¹⁰³, S.J. Hall⁷, S.P.
 Hallworth Cook⁷, C. Hamlyn-Harris⁷, K. Hammond⁷, C. Harrington⁷, J. Harrison⁷, D. Harting⁷,
 F. Hasenbeck³⁹, Y. Hatano¹⁰⁸, D.R. Hatch¹⁰⁷, T.D.V. Haupt⁷, J. Hawes⁷, N.C. Hawkes⁷, J.
 Hawkins⁷, P. Hawkins⁷, P.W. Haydon⁷, N. Hayter⁷, S. Hazel⁷, P.J.L. Heesterman⁷, K.
 Heinola¹⁰¹, C. Hellesen²², T. Hellsten⁴², W. Helou⁸, O.N. Hemming⁷, T.C. Hender⁷, M.
 Henderson⁵⁵, S.S. Henderson²¹, R. Henriques⁵³, D. Hepple⁷, G. Hermon⁷, P. Hertout⁸, C.
 Hidalgo⁵⁷, E.G. Highcock²⁷, M. Hill⁷, J. Hillairet⁸, J. Hillesheim⁷, D. Hillis⁷³, K. Hizanidis⁷⁰,
 A. Hjalmarsson²², J. Hobirk⁶², E. Hodille⁸, C.H.A. Hogben⁷, G.M.D. Hogeweyj³⁸, A.
 Hollingsworth⁷, S. Hollis⁷, D.A. Homfray⁷, J. Horáček⁵⁰, G. Hornung¹⁵, A.R. Horton⁷, L.D.
 Horton³⁶, L. Horvath¹¹⁰, S.P. Hotchin⁷, M.R. Hough⁷, P.J. Howarth⁷, A. Hubbard⁶⁴, A. Huber³⁹,
 V. Huber³⁹, T.M. Huddleston⁷, M. Hughes⁷, G.T.A. Huijsmans⁵⁵, C.L. Hunter⁷, P. Huynh⁸,
 A.M. Hynes⁷, D. Iglesias⁷, N. Imazawa⁶⁹, F. Imbeaux⁸, M. Imrišek⁵⁰, M. Incelli¹⁰⁹, P.
 Innocente¹², M. Irishkin⁸, I. Ivanova-Stanik⁴⁹, S. Jachmich^{58,35}, A. S. Jacobsen⁸³, P. Jacquet⁷, J.
 Jansons¹⁰³, A. Jardin⁸, A. Järvinen¹, F. Jaulmes³⁸, S. Jednoróg⁴⁹, I. Jenkins⁷, C. Jeong²⁰, I.
 Jepu⁸⁶, R. Johnson⁷, T. Johnson⁴², Jane Johnston⁷, L. Joita⁷, G. Jones⁷, T.T.C. Jones⁷, K. K
 Hoshino⁶⁹, A. Kallenbach⁶², K. Kamiya⁶⁹, J. Kaniewski⁷, A. Kantor⁷, A. Kappatou⁶², J.
 Karhunen¹, D. Karkinsky⁷, I. Karnowska⁷, M. Kaufman⁷³, G. Kaveney⁷, Y. Kazakov⁵⁸, V.
 Kazantzidis⁷⁰, D.L. Keeling⁷, T. Keenan⁷, J. Keep⁷, M. Kempenaars⁷, C. Kennedy⁷, D. Kenny⁷,
 J. Kent⁷, O.N. Kent⁷, E. Khilkevich⁵⁴, H.T. Kim³⁵, H.S. Kim⁸⁰, A. Kinch⁷, C. King⁷, D. King⁷,
 R.F. King⁷, D.J. Kinna⁷, V. Kiptily⁷, A. Kirk⁷, K. Kirov⁷, A. Kirschner³⁹, G. Kizane¹⁰³, C.
 Klepper⁷³, A. Klix⁵⁶, P. Knight⁷, S.J. Knipe⁷, S. Knott⁹⁶, T. Kobuchi⁶⁹, F. Köchl¹¹¹, G.
 Kocsis¹¹³, I. Kodeli⁸¹, L. Kogan⁷, D. Kogut⁸, S. Koivuranta¹¹², Y. Kominis⁷⁰, M. Köppen³⁹, B.
 Kos⁸¹, T. Koskela¹, H.R. Koslowski³⁹, M. Koubiti⁴, M. Kovari⁷, E. Kowalska-Strzëciwilk⁴⁹, A.
 Krasilnikov⁸⁸, V. Krasilnikov⁸⁸, N. Krawczyk⁴⁹, M. Kresina⁸, K. Krieger⁶², A. Krivska⁵⁸, U.
 Kruezi⁷, I. Książek⁴⁸, A. Kukushkin⁷², A. Kundu⁴⁶, T. Kurki-Suonio¹, S. Kwak²⁰, R.
 Kwiatkowski⁶⁵, O.J. Kwon¹³, L. Laguardia⁴⁵, A. Lahtinen¹⁰¹, A. Laing⁷, N. Lam⁷, H.T.
 Lambertz³⁹, C. Lane⁷, P.T. Lang⁶², S. Lanthaler³³, J. Lapins¹⁰³, A. Lasa¹⁰¹, J.R. Last⁷, E.
 Łaszyńska⁴⁹, R. Lawless⁷, A. Lawson⁷, K.D. Lawson⁷, A. Lazaros⁷⁰, E. Lazzaro⁴⁵, J. Leddy¹¹⁰,

S. Lee⁶⁶, X. Lefebvre⁷, H.J. Leggate³², J. Lehmann⁷, M. Lehnen⁵⁵, D. Leichtle⁴¹, P. Leichner⁷, F. Leipold^{55,83}, I. Lengar⁸¹, M. Lennholm³⁶, E. Lerche⁵⁸, A. Lescinskis¹⁰³, S. Lesnoj⁷, E. Letellier⁷, M. Leyland¹¹⁰, W. Leysen⁷⁸, L. Li³⁹, Y. Liang³⁹, J. Likonen¹¹², J. Linke³⁹, Ch. Linsmeier³⁹, B. Lipschultz¹¹⁰, X. Litaudon³⁵, G. Liu⁵⁵, Y. Liu⁵¹, V.P. Lo Schiavo¹⁰⁵, T. Loarer⁸, A. Loarte⁵⁵, R.C. Lobel⁷, B. Lomanowski¹, P.J. Lomas⁷, J. Lönnroth^{1,35}, J. M. López⁹⁴, J. López-Razola⁵⁷, R. Lorenzini¹², U. Losada⁵⁷, J.J. Lovell⁷, A.B. Loving⁷, C. Lowry³⁶, T. Luce⁴³, R.M.A. Lucock⁷, A. Lukin⁷⁴, C. Luna⁵, M. Lungaroni⁹⁵, C.P. Lungu⁸⁶, M. Lungu⁸⁶, A. Lunniss¹¹⁰, I. Lupelli⁷, A. Lysoivan⁵⁸, N. Macdonald⁷, P. Macheta⁷, K. Maczewska⁷, B. Magesh⁴⁶, P. Maget⁸, C. Maggi⁷, H. Maier⁶², J. Mailloux⁷, T. Makkonen¹, R. Makwana⁴⁶, A. Malaquias⁵³, A. Malizia⁹⁵, P. Manas⁴, A. Manning⁷, M.E. Manso⁵³, P. Mantica⁴⁵, M. Mantsinen⁶, A. Manzanares⁹¹, Ph. Maquet⁵⁵, Y. Marandet⁴, N. Marcenko⁸⁸, C. Marchetto⁴⁵, O. Marchuk³⁹, M. Marinelli⁹⁵, M. Marinucci⁹⁰, T. Markovič⁵⁰, D. Marocco⁹⁰, L. Marot²⁶, C.A. Marren⁷, R. Marshal⁷, A. Martin⁷, Y. Martin³³, A. Martín de Aguilera⁵⁷, F.J. Martínez⁹³, J. R. Martín-Solís¹⁴, Y. Martynova³⁹, S. Maruyama⁵⁵, A. Masiello¹², M. Maslov⁷, S. Matejczik¹⁸, M. Mattei⁷⁹, G.F. Matthews⁷, F. Maviglia¹¹, M. Mayer⁶², M.L. Mayoral³⁴, T. May-Smith⁷, D. Mazon⁸, C. Mazzotta⁹⁰, R. McAdams⁷, P.J. McCarthy⁹⁶, K.G. McClements⁷, O. McCormack¹², P.A. McCullen⁷, D. McDonald³⁴, S. McIntosh⁷, R. McKean⁷, J. McKehon⁷, R.C. Meadows⁷, A. Meakins⁷, F. Medina⁵⁷, M. Medland⁷, S. Medley⁷, S. Meigh⁷, A.G. Meigs⁷, G. Meisl⁶², S. Meitner⁷³, L. Meneses⁵³, S. Menmuir^{7,42}, K. Mergia⁷¹, I.R. Merrigan⁷, Ph. Mertens³⁹, S. Meshchaninov⁸⁸, A. Messiaen⁵⁸, H. Meyer⁷, S. Mianowski⁶⁵, R. Michling⁵⁵, D. Middleton-Gear⁷, J. Miettunen¹, F. Militello⁷, E. Militello-Asp⁷, G. Miloshevsky⁷⁷, F. Mink⁶², S. Minucci¹⁰⁵, Y. Miyoshi⁶⁹, J. Mlynár⁵⁰, D. Molina⁸, I. Monakhov⁷, M. Moneti¹⁰⁹, R. Mooney⁷, S. Moradi³⁷, S. Mordijck⁴³, L. Moreira⁷, R. Moreno⁵⁷, F. Moro⁹⁰, A.W. Morris⁷, J. Morris⁷, L. Moser²⁶, S. Mosher⁷³, D. Moulton^{7,1}, A. Murari^{12,35}, A. Muraro⁴⁵, S. Murphy⁷, N. N Asakura⁶⁹, Y.S. Na⁸⁰, F. Nabais⁵³, R. Naish⁷, T. Nakano⁶⁹, E. Nardon⁸, V. Naulin⁸³, M.F.F. Nave⁵³, I. Nedzelski⁵³, G. Nemtsev⁸⁸, F. Nespoli³³, A. Neto⁴¹, R. Neu⁶², V.S. Neverov⁷², M. Newman⁷, K.J. Nicholls⁷, T. Nicolas³³, A.H. Nielsen⁸³, P. Nielsen¹², E. Nilsson⁸, D. Nishijima⁹⁹, C. Noble⁷, M. Nocente⁹⁷, D. Nodwell⁷, K. Nordlund¹⁰¹, H. Nordman¹⁶, R. Nouailletas⁸, I. Nunes⁵³, M. Oberkofler⁶², T. Odupitan⁷, M.T. Ogawa⁶⁹, T. O'Gorman⁷, M. Okabayashi⁷⁶, R. Olney⁷, O. Omolayo⁷, M. O'Mullane²¹, J. Ongena⁵⁸, F. Orsitto¹¹, J. Orszagh¹⁸, B.I. Oswuigwe⁷, R. Otin⁷, A. Owen⁷, R. Paccagnella¹², N. Pace⁷, D. Pacella⁹⁰, L.W. Packer⁷, A. Page⁷, E. Pajuste¹⁰³, S. Palazzo³⁰, S. Pamela⁷, S. Panja⁴⁶, P. Papp¹⁸, R. Paprok⁵⁰, V. Parail⁷, M. Park⁶⁶, F. Parra Diaz²⁷, M. Parsons⁷³, R. Pasqualotto¹², A. Patel⁷, S. Pathak⁴⁶, D. Paton⁷, H. Patten³³, A. Pau¹⁷, E. Pawelec⁴⁸, C. Paz Soldan⁴³, A. Peackoc³⁶, I.J. Pearson⁷, S.-P. Pehkonen¹¹², E. Peluso⁹⁵, C. Penot⁵⁵, A. Pereira⁵⁷, R. Pereira⁵³, P.P. Pereira Puglia⁷, C. Perez von Thun^{35,39}, S. Peruzzo¹², S. Peschanyi⁵⁶, M. Peterka⁵⁰, P. Petersson⁴², G. Petravich¹¹³, A. Petre⁸⁴, N. Petrella⁷, V. Petržilka⁵⁰, Y. Peysson⁸, D. Pfefferlé³³, V. Philipps³⁹, M. Pillon⁹⁰, G. Pintsuk³⁹, P. Piovesan¹², A. Pires dos Reis⁵², L. Piron⁷, A. Pironti¹⁰⁵, F. Pisano¹⁷, R. Pitts⁵⁵, F. Pizzo⁷⁹, V. Plyusnin⁵³, N. Pomaro¹², O.G. Pompilian⁸⁶, P.J. Pool⁷, S. Popovichev⁷, M.T. Porfiri⁹⁰, C. Porosnicu⁸⁶, M. Porton⁷, G. Possnert²², S. Potzel⁶², T. Powell⁷, J. Pozzi⁷, V. Prajapati⁴⁶, R. Prakash⁴⁶, G. Prestopino⁹⁵, D. Price⁷, M. Price⁷, R. Price⁷, P. Prior⁷, R. Proudfoot⁷, G. Pucella⁹⁰, P. Puglia⁵², M.E. Puiatti¹², D. Pulley⁷, K. Purahoo⁷, Th. Pütterich⁶², E. Rachlew²⁵, M. Rack³⁹, R. Ragona⁵⁸, M.S.J. Rainford⁷, A. Rakha⁶, G. Ramogida⁹⁰, S. Ranjan⁴⁶, C.J. Rapson⁶², J.J. Rasmussen⁸³, K. Rathod⁴⁶, G. Rattá⁵⁷, S. Ratynskaia⁸², G. Ravera⁹⁰, C. Rayner⁷, M. Rebai⁹⁷, D. Reece⁷, A. Reed⁷, D. Réfy¹¹³, B. Regan⁷, J. Regaña³⁴, M. Reich⁶², N. Reid⁷, F. Reimold³⁹, M. Reinhart³⁴, M. Reinke^{110,73}, D. Reiser³⁹, D. Rendell⁷, C. Reux⁸, S.D.A. Reyes Cortes⁵³, S. Reynolds⁷, V. Riccardo⁷, N. Richardson⁷, K. Riddle⁷, D. Rigamonti⁹⁷, F.G. Rimini⁷, J. Risner⁷³, M. Riva⁹⁰, C. Roach⁷, R.J. Robins⁷, S.A. Robinson⁷, T. Robinson⁷, D.W. Robson⁷, R. Roccella⁵⁵, R. Rodionov⁸⁸, P. Rodrigues⁵³, J. Rodriguez⁷, V. Rohde⁶², F. Romanelli⁹⁰, M. Romanelli⁷, S. Romanelli⁷, J. Romazanov³⁹, S. Rowe⁷, M. Rubel⁴², G. Rubinacci¹⁰⁵, G. Rubino¹², L. Ruchko⁵², M. Ruiz⁹⁴, C. Ruset⁸⁶, J. Rzedkiewicz⁶⁵, S. Saarelma⁷,

R. Sabot⁸, E. Safi¹⁰¹, P. Sagar⁷, G. Saibene⁴¹, F. Saint-Laurent⁸, M. Salewski⁸³, A. Salmi¹¹², R. Salmon⁷, F. Salzedas⁵³, D. Samaddar⁷, U. Samm³⁹, D. Sandiford⁷, P. Santa⁴⁶, M.I.K. Santala¹, B. Santos⁵³, A. Santucci⁹⁰, F. Sartori⁴¹, R. Sartori⁴¹, O. Sauter³³, R. Scannell⁷, T. Schlummer³⁹, K. Schmid⁶², V. Schmidt¹², S. Schmuck⁷, M. Schneider⁸, K. Schöpf¹⁰², D. Schwörer³², S.D. Scott⁷⁶, G. Sergienko³⁹, M. Sertoli⁶², A. Shabbir¹⁵, S.E. Sharapov⁷, A. Shaw⁷, R. Shaw⁷, H. Sheikh⁷, A. Shepherd⁷, A. Shevelev⁵⁴, A. Shumack³⁸, G. Sias¹⁷, M. Sibbald⁷, B. Sieglin⁶², S. Silburn⁷, A. Silva⁵³, C. Silva⁵³, P.A. Simmons⁷, J. Simpson⁷, J. Simpson-Hutchinson⁷, A. Sinha⁴⁶, S.K. Sipilä¹, A.C.C. Sips³⁶, P. Sirén¹¹², A. Sirinelli⁵⁵, H. Sjöstrand²², M. Skiba²², R. Skilton⁷, K. Slabkowska⁴⁹, B. Slade⁷, N. Smith⁷, P.G. Smith⁷, R. Smith⁷, T.J. Smith⁷, M. Smithies¹¹⁰, L. Snoj⁸¹, S. Soare⁸⁵, E. R. Solano^{35,57}, A. Somers³², C. Sommariva⁸, P. Sonato¹², A. Sopples¹², J. Sousa⁵³, C. Sozzi⁴⁵, S. Spagnolo¹², T. Spelzini⁷, F. Spineanu⁸⁶, G. Stables⁷, I. Stamatelatos⁷¹, M.F. Stamp⁷, P. Staniec⁷, G. Stankūnas⁵⁹, C. Stan-Sion⁸⁴, M.J. Stead⁷, E. Stefanikova⁴², I. Stepanov⁵⁸, A.V. Stephen⁷, M. Stephen⁴⁶, A. Stevens⁷, B.D. Stevens⁷, J. Strachan⁷⁶, P. Strand¹⁶, H.R. Strauss⁴⁴, P. Ström⁴², G. Stubbs⁷, W. Studholme⁷, F. Subba⁷⁵, H.P. Summers²¹, J. Svensson⁶³, Ł. Świdorski⁶⁵, T. Szabolics¹¹³, M. Szawlowski⁴⁹, G. Szepesi⁷, T. T Suzuki⁶⁹, B. Tál¹¹³, T. Tala¹¹², A.R. Talbot⁷, S. Talebzadeh⁹⁵, C. Taliercio¹², P. Tamain⁸, C. Tame⁷, W. Tang⁷⁶, M. Tardocchi⁴⁵, L. Taroni¹², D. Taylor⁷, K.A. Taylor⁷, D. Tegnered¹⁶, G. Telesca¹⁵, N. Teplova⁵⁴, D. Terranova¹², D. Testa³³, E. Tholerus⁴², J. Thomas⁷, J.D. Thomas⁷, P. Thomas⁵⁵, A. Thompson⁷, C.-A. Thompson⁷, V.K. Thompson⁷, L. Thorne⁷, A. Thornton⁷, A.S. Thrysoe⁸³, P.A. Tigwell⁷, N. Tipton⁷, I. Tiseanu⁸⁶, H. Tojo⁶⁹, M. Tokitani⁶⁷, P. Tolia⁸², M. Tomeš⁵⁰, P. Tonner⁷, M. Towndrow⁷, P. Trimble⁷, M. Tripsky⁵⁸, M. Tsalias³⁸, P. Tsavalas⁷¹, D. Tskhakaya jun¹⁰², I. Turner⁷, M.M. Turner³², M. Turnyanskiy³⁴, G. Tvalashvili⁷, S.G.J. Tyrrell⁷, A. Uccello⁴⁵, Z. Ul-Abidin⁷, J. Uljanovs¹, D. Ulyatt⁷, H. Urano⁶⁹, I. Uytendhouwen⁷⁸, A.P. Vadgama⁷, D. Valcarcel⁷, M. Valentinuzzi⁸, M. Valisa¹², P. Vallejos Olivares⁴², M. Valovic⁷, M. Van De Mortel⁷, D. Van Eester⁵⁸, W. Van Renterghem⁷⁸, G.J. van Rooij³⁸, J. Varje¹, S. Varoutis⁵⁶, S. Vartanian⁸, K. Vasava⁴⁶, T. Vasilopoulou⁷¹, J. Vega⁵⁷, G. Verdoolaege⁵⁸, R. Verhoeven⁷, C. Verona⁹⁵, G. Verona Rinati⁹⁵, E. Veshchev⁵⁵, N. Vianello⁴⁵, J. Vicente⁵³, E. Viezzer^{62,92}, S. Villari⁹⁰, F. Villone¹⁰⁰, P. Vincenzi¹², I. Vinyar⁷⁴, B. Viola⁹⁰, A. Vitins¹⁰³, Z. Vizvary⁷, M. Vlad⁸⁶, I. Voitsekhovitch³⁴, P. Vondráček⁵⁰, N. Vora⁷, T. Vu⁸, W. W Pires de Sa⁵², B. Wakeling⁷, C.W.F. Waldon⁷, N. Walkden⁷, M. Walker⁷, R. Walker⁷, M. Walsh⁵⁵, E. Wang³⁹, N. Wang³⁹, S. Warder⁷, R.J. Warren⁷, J. Waterhouse⁷, N.W. Watkins²⁸, C. Watts⁵⁵, T. Wauters⁵⁸, A. Weckmann⁴², J. Weiland²³, H. Weisen³³, M. Weiszflog²², C. Wellstood⁷, A.T. West⁷, M.R. Wheatley⁷, S. Whetham⁷, A.M. Whitehead⁷, B.D. Whitehead⁷, A.M. Widdowson⁷, S. Wiesen³⁹, J. Wilkinson⁷, J. Williams⁷, M. Williams⁷, A.R. Wilson⁷, D.J. Wilson⁷, H.R. Wilson¹¹⁰, J. Wilson⁷, M. Wischmeier⁶², G. Withenshaw⁷, A. Withycombe⁷, D.M. Witts⁷, D. Wood⁷, R. Wood⁷, C. Woodley⁷, S. Wray⁷, J. Wright⁷, J.C. Wright⁶⁴, J. Wu⁸⁹, S. Wukitch⁶⁴, A. Wynn¹¹⁰, T. Xu⁷, D. Yadikin¹⁶, W. Yanling³⁹, L. Yao⁸⁹, V. Yavorskiy¹⁰², M.G. Yoo⁸⁰, C. Young⁷, D. Young⁷, I.D. Young⁷, R. Young⁷, J. Zacks⁷, R. Zagorski⁴⁹, F.S. Zaitsev¹⁸, R. Zanino⁷⁵, A. Zarins¹⁰³, K.D. Zastrow⁷, M. Zerbinì⁹⁰, W. Zhang⁶², Y. Zhou⁴², E. Zilli¹², V. Zoita⁸⁶, S. Zoletnik¹¹³, I. Zychor⁶⁵

¹Aalto University, P.O.Box 14100, FIN-00076 Aalto, Finland,

²Aix Marseille Université, CNRS, Centrale Marseille, M2P2 UMR 7340, 13451, Marseille, France,

³Aix-Marseille Université, CNRS, IUSTI UMR 7343, 13013 Marseille, France,

⁴Aix-Marseille Université, CNRS, PIIM, UMR 7345, 13013 Marseille, France,

⁵Arizona State University, Tempe, United States ,

⁶Barcelona Supercomputing Center, Barcelona, Spain,

⁷CCFE, Culham Science Centre, Abingdon, Oxon, OX14 3DB, UK,

⁸CEA, IRFM, F-13108 Saint Paul Lez Durance, France,

⁹Center for Energy Research, University of California at San Diego, La Jolla, CA 92093, USA,

- ¹⁰Centro Brasileiro de Pesquisas Físicas, Rua Xavier Sigaud, 160, Rio de Janeiro CEP 22290-180, Brazil,
- ¹¹Consorzio CREATE, Via Claudio 21, 80125 Napoli, Italy,
- ¹²Consorzio RFX, corso Stati Uniti 4, 35127 Padova, Italy,
- ¹³Daegu University, Jillyang, Gyeongsan, Gyeongbuk 712-174, Republic of Korea,
- ¹⁴Departamento de Física, Universidad Carlos III de Madrid, 28911 Leganés, Madrid, Spain,
- ¹⁵Department of Applied Physics UG (Ghent University) St-Pietersnieuwstraat 41 B-9000 Ghent, Belgium,
- ¹⁶Department of Earth and Space Sciences, Chalmers University of Technology, SE-41296 Gothenburg, Sweden,
- ¹⁷Department of Electrical and Electronic Engineering, University of Cagliari, Piazza d'Armi 09123 Cagliari, Italy,
- ¹⁸Department of Experimental Physics, Faculty of Mathematics, Physics and Informatics Comenius University Mlynska dolina F2, 84248 Bratislava, Slovak Republic,
- ¹⁹Department of Materials Science, Warsaw University of Technology, PL-01-152 Warsaw, Poland,
- ²⁰Department of Nuclear and Quantum Engineering, KAIST, Daejeon 34141, Korea,
- ²¹Department of Physics and Applied Physics, University of Strathclyde, Glasgow, G4 ONG, UK,
- ²²Department of Physics and Astronomy, Uppsala University, SE-75120 Uppsala, Sweden,
- ²³Department of Physics, Chalmers University of Technology, SE-41296 Gothenburg, Sweden,
- ²⁴Department of Physics, Imperial College London, SW7 2AZ, UK,
- ²⁵Department of Physics, SCI, KTH, SE-10691 Stockholm, Sweden,
- ²⁶Department of Physics, University of Basel, Switzerland ,
- ²⁷Department of Physics, University of Oxford, OX1 2JD, UK,
- ²⁸Department of Physics, University of Warwick, Coventry, CV4 7AL, UK,
- ²⁹Department of Pure and Applied Physics, Queens University, Belfast, BT7 1NN, UK,
- ³⁰Dipartimento di Ingegneria Elettrica Elettronica e Informatica-Università degli Studi di Catania, 95125 Catania, Italy,
- ³¹Dipartimento di Ingegneria Industriale, University of Trento, Italy,
- ³²Dublin City University (DCU), Ireland,
- ³³Ecole Polytechnique Fédérale de Lausanne (EPFL), Swiss Plasma Center (SPC), CH-1015 Lausanne, Switzerland,
- ³⁴EUROfusion Programme Management Unit, Boltzmannstr. 2, 85748 Garching, Germany ,
- ³⁵EUROfusion Programme Management Unit, Culham Science Centre, Culham, OX14 3DB, UK ,
- ³⁶European Commission, B-1049 Brussels, Belgium,
- ³⁷Fluid and Plasma Dynamics, ULB - Campus Plaine - CP 231 Boulevard du Triomphe, 1050 Bruxelles, Belgium,
- ³⁸FOM Institute DIFFER, Eindhoven, the Netherlands,
- ³⁹Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung - Plasmaphysik, 52425 Jülich, Germany,
- ⁴⁰Fourth State Research, 503 Lockhart Dr, Austin, Texas, United States,
- ⁴¹Fusion for Energy Joint Undertaking, Josep Pl. 2, Torres Diagonal Litoral B3, 08019, Barcelona, Spain,
- ⁴²Fusion Plasma Physics, EES, KTH, SE-10044 Stockholm, Sweden,
- ⁴³General Atomics, P.O.Box 85608, San Diego, CA 92186-5608, California, USA,
- ⁴⁴HRS Fusion, West Orange NJ, USA,
- ⁴⁵IFP-CNR, via R. Cozzi 53, 20125 Milano, Italy,
- ⁴⁶Institute for Plasma Research, Bhat, Gandhinagar - 382 428, Gujarat State, India,
- ⁴⁷Institute of Nuclear Physics, Radzikowskiego 152, 31-342 Kraków, Poland,

- ⁴⁸Institute of Physics, Opole University, Oleska 48, 45-052 Opole, Poland,
- ⁴⁹Institute of Plasma Physics and Laser Microfusion, Hery 23, 01-497 Warsaw, Poland,
- ⁵⁰Institute of Plasma Physics AS CR, Za Slovankou 1782/3, 182 00 Praha 8, Czech Republic,
- ⁵¹Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, 230031, China,
- ⁵²Instituto de Física - Universidade de São Paulo Rua do Matão Travessa R Nr.187 CEP 05508-090 Cidade Universitária, São Paulo, Brasil ,
- ⁵³Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa, Portugal,
- ⁵⁴Ioffe Physico-Technical Institute, 26 Politekhnicheskaya, St Petersburg 194021, Russian Federation,
- ⁵⁵ITER Organization, Route de Vinon, CS 90 046, 13067 Saint Paul Lez Durance, France,
- ⁵⁶Karlsruhe Institute of Technology, P.O.Box 3640, D-76021 Karlsruhe, Germany,
- ⁵⁷Laboratorio Nacional de Fusión, CIEMAT, Madrid, Spain,
- ⁵⁸Laboratory for Plasma Physics Koninklijke Militaire School - Ecole Royale Militaire Renaissancelaan 30 Avenue de la Renaissance B-1000, Brussels, Belgium,
- ⁵⁹Lithuanian energy institute, Breslaujos g. 3, LT-44403, Kaunas, Lithuania,
- ⁶⁰Magnetic Sensor Laboratory, Lviv Polytechnic National University, Lviv, Ukraine,
- ⁶¹Maritime University of Szczecin, Waly Chrobrego 1-2, 70-500 Szczecin, Poland,
- ⁶²Max-Planck-Institut für Plasmaphysik, D-85748 Garching, Germany,
- ⁶³Max-Planck-Institut für Plasmaphysik, Teilinstitut Greifswald, D-17491 Greifswald, Germany,
- ⁶⁴MIT Plasma Science and Fusion Centre, Cambridge, MA 02139, Massachusetts, USA,
- ⁶⁵National Centre for Nuclear Research(NCBJ),05-400 Otwock-Świerk, Poland,
- ⁶⁶National Fusion Research Institute(NFRI) 169-148 Gwahak-ro, Yuseong-gu, Daejeon 305-806, Republic of Korea,
- ⁶⁷National Institute for Fusion Science, Oroshi, Toki, Gifu 509-5292, Japan,
- ⁶⁸National Institute for Fusion Science, Toki, 509-5292, Japan,
- ⁶⁹National Institutes for Quantum and Radiological Science and Technology, Naka, Ibaraki 311-0193, Japan,
- ⁷⁰National Technical University of Athens, Iroon Politechniou 9, 157 73 Zografou, Athens, Greece,
- ⁷¹NCSR "Demokritos" 153 10, Agia Paraskevi Attikis, Greece,
- ⁷²NRC Kurchatov Institute, 1 Kurchatov Square, Moscow 123182, Russian Federation,
- ⁷³Oak Ridge National Laboratory, Oak Ridge, TN 37831-6169, Tennessee, USA,
- ⁷⁴PELIN LLC, 27a, Gzhatskaya Ulitsa, Saint Petersburg, 195220, Russian Federation,
- ⁷⁵Politecnico di Torino, Corso Duca degli Abruzzi 24, I-10129 Torino, Italy,
- ⁷⁶Princeton Plasma Physics Laboratory, James Forrestal Campus, Princeton, NJ 08543, New Jersey, USA,
- ⁷⁷Purdue University, 610 Purdue Mall, West Lafayette, IN 47907, USA,
- ⁷⁸SCK-CEN, Nuclear Research Centre, 2400 Mol, Belgium,
- ⁷⁹Second University of Napoli, Consorzio CREATE, Via Claudio 21, 80125 Napoli, Italy,
- ⁸⁰Seoul National University, Shilim-Dong, Gwanak-Gu, Republic of Korea,
- ⁸¹Slovenian Fusion Association (SFA), Jozef Stefan Institute, Jamova 39, SI-1000 Ljubljana, Slovenia,
- ⁸²Space and Plasma Physics, EES, KTH SE-100 44 Stockholm, Sweden,
- ⁸³Technical University of Denmark, Department of Physics, Bldg 309, DK-2800 Kgs Lyngby, Denmark,
- ⁸⁴The "Horia Hulubei" National Institute for Physics and Nuclear Engineering, Magurele-Bucharest, Romania,
- ⁸⁵The National Institute for Cryogenics and Isotopic Technology, Ramnicu Valcea, Romania,

- ⁸⁶The National Institute for Laser, Plasma and Radiation Physics, Magurele-Bucharest, Romania,
- ⁸⁷The National Institute for Optoelectronics, Magurele-Bucharest, Romania,
- ⁸⁸Troitsk Institute of Innovating and Thermonuclear Research (TRINITI), Troitsk 142190, Moscow Region, Russian Federation,
- ⁸⁹Uni of Electronic Science & Tech of China, China,
- ⁹⁰Unità Tecnica Fusione - ENEA C. R. Frascati - via E. Fermi 45, 00044 Frascati (Roma), Italy,
- ⁹¹Universidad Complutense de Madrid, Madrid, Spain,
- ⁹²Universidad de Sevilla, Sevilla, Spain,
- ⁹³Universidad Nacional de Educación a Distancia, Madrid, Spain,
- ⁹⁴Universidad Politécnica de Madrid, Grupo I2A2, Madrid, Spain,
- ⁹⁵Università di Roma Tor Vergata, Via del Politecnico 1, Roma, Italy,
- ⁹⁶University College Cork (UCC), Ireland,
- ⁹⁷University Milano-Bicocca, piazza della Scienza 3, 20126 Milano, Italy,
- ⁹⁸University of Basilicata, Consorzio CREATE, Via Claudio 21, 80125 Napoli, Italy,
- ⁹⁹University of California, 1111 Franklin St., Oakland, CA 94607, USA,
- ¹⁰⁰University of Cassino, Consorzio CREATE, Via Claudio 21, 80125 Napoli, Italy,
- ¹⁰¹University of Helsinki, P.O. Box 43, FI-00014 University of Helsinki, Finland,
- ¹⁰²University of Innsbruck, Fusion@Österreichische Akademie der Wissenschaften (ÖAW), Austria,
- ¹⁰³University of Latvia, 19 Raina Blvd., Riga, LV 1586, Latvia,
- ¹⁰⁴University of Lorraine, CNRS, UMR7198, YIJL, Nancy, France,
- ¹⁰⁵University of Napoli "Federico II", Consorzio CREATE, Via Claudio 21, 80125 Napoli, Italy,
- ¹⁰⁶University of Napoli Parthenope, Consorzio CREATE, Via Claudio 21, 80125 Napoli, Italy,
- ¹⁰⁷University of Texas at Austin, Institute for Fusion Studies, Austin, TX 78712, Texas, USA,
- ¹⁰⁸University of Toyama, Toyama, 930-8555, Japan,
- ¹⁰⁹University of Tuscia, DEIM, Via del Paradiso 47, 01100 Viterbo, Italy,
- ¹¹⁰University of York, Heslington, York YO10 5DD, UK,
- ¹¹¹Vienna University of Technology, Fusion@Österreichische Akademie der Wissenschaften (ÖAW), Austria,
- ¹¹²VTT Technical Research Centre of Finland, P.O.Box 1000, FIN-02044 VTT, Finland,
- ¹¹³Wigner Research Centre for Physics, P.O.B. 49, H - 1525 Budapest, Hungary