




भारत सरकार / Government of India
परमाणु ऊर्जा विभाग / Department of Atomic Energy
होमी भाभा राष्ट्रीय संस्थान / Homi Bhabha National Institute
राजा रामन्ना प्रगत प्रौद्योगिकी केन्द्र
Raja Ramanna Centre for Advanced Technology



HBNI Faculty Profile

Name	<i>Juzer Ali Chakera</i>	
Designation	<i>Professor</i>	
Research Area	<i>Ultrashort ultrahigh intensity laser matter interaction, Higher Harmonic Generation, Attosecond pulse generation, Time resolved X-ray Diffraction, THz studies, and laser based particle accelerators.</i>	
Research Profile	<p><i>He started working in the field of laser plasma interaction viz. plasma opacity enhancement of mix-Z alloy leading to higher x-ray conversion of laser light. He did Ph.D. in 2005. From 2006 to 2008 he was Post-Doctoral Fellow at University of Alberta, Canada. His current field of interest is particle acceleration in ultrahigh intensity laser plasmas, HHG in laser plasma, atto-second pulse generation, and Time Resolved X-ray Diffraction. He is currently heading Laser Plasma Division at RRCAT.</i></p> <p><i>Under his leadership the group has set-up 1PW Ti:sapphire laser experimental facility, developed various plasma/particle diagnostics for particle acceleration and fast electron transport.</i></p>	
Ten Selected Recent Publications		
1.	Kumar, M., Singhal, H., Ansari, A., and Chakera, J. A., 2020, Spatial coherence of trajectory-resolved higher-order harmonics generated from an argon-filled gas cell using single- and two-color laser pulses. Phys. Rev. A 102(4), pp.043101-043111.	
2.	Bagchi, S., Tayyab, M., Pasley, J., Robinson, A. P. L., Nayak, M., and Chakera, J. A., 2021, Quasi mono-energetic heavy ion acceleration from layered targets. Phys. Plasmas 28, p.p.023108 -023119.	
3.	Rathore, R., Singhal, H., Ansari, A., and Chakera, J. A., 2021, Evolution of laser-induced strain in a Ge crystal for the [111] and [100] directions probed by time-resolved X-ray diffraction. J. Appl. Cryst. 54, p.p.1757-1765.	
4.	Mishra, S., Rao, B. S., Moorti, A., and Chakera, J. A., 2022, Enhanced betatron x-ray emission in a laser wakefield accelerator and wiggler due to collective oscillations	



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	of electrons. Phys. Review Accelerators and Beams 25(9), p.p.090703-090711.
5.	Kumar, M., Singhal, H., Ansari, A., and Chakera, J. A., 2023. Design and performance of a double-solenoid magnetic bottle photoelectron spectrometer for attosecond metrology. Rev. Sci. Instrum. 94, p.p.023303-023313.
6.	Mandal, T., Arora, V., Moorti, A., Uphadhyay, A., and Chakera, J. A., 2023, Addressing key aspects of J x B driven MeV fast electron generation in ultra-short ultra-intense laser foil interaction. Phys. Plasmas 30, p.p.023106-023113.
7.	Rathore, R., Singhal, H., and Chakera, J. A., 2019, Temporal evolution of photo-induced thermal strain in InSb probed by ultra-short laser produced Cu K α x-rays. J. Appl. Phys., 126, p.p.105706-105713.
8.	Tayyab, M., Bagchi, S., Moorti, A., and Chakera, J. A., 2019, Experimental investigation on nuclear reactions using a laser-accelerated proton and deuteron beam. Plasma Phys. Control. Fusion 61, p.p.115007-115015.
9.	Mandal, T., Arora, V., Rao, B. S., Moorti, A., Upadhyay, A., and Chakera, J. A., 2019. Experimental study of fast electron generation in intense short duration laser solid interaction at grazing incidence. Phys. Plasmas 26, p.p.043105-04314.
10.	Tayyab, M., Bagchi, S., Chakera, J. A., Khan, R. A., and Naik, P. A., 2018, Effect of temporally modified ultra-short laser pulses on-ion acceleration from thin foil targets. Physics of Plasmas 25, p.p.083113-083121.