PLPAC meeting 2024-1

Contribution ID : 30

Creation and Tuning of Defects in Nanomaterials using Ion Beam Implantation

Tuesday 23 Apr 2024 at 12:45 (00h15')

PI info :
VIVEK POLSHETTIWAR

local collaborator info :
Prof. Rudrajyoti Palit, & Dr. Sanjoy Pal, TIFR, Mumbai

Collaborators Name :
Ms. Charvi Singhvi
Ms. Gunjan Sharma

Motivation :
Our foundational hypothesis is predicated upon the notion that the deliberate bombardment of these specified nanomaterials with a selection of ionic species will catalyze the genesis of bifurcated defect modalities: i) vacancies, and ii) adatoms (doping), or a sophisticated amalgamation of both, contingent upon the interplay between the ion's type and its kinetic energy dynamics. The strategic incursion of selected metallic ions into the lattice structures is postulated to precipitate the emergence of discrete atom dopants intricately embedded within the host material matrix, potentially revolutionizing its catalytic properties.

Beam time requirement in shifts :
8

Beam :
Nickel (Ni), Silver (Ag), Vanadium (V), or Aluminium (Al), Boron

Beam Energy :
20-50

Beam Current :
10

Beam Port :
30N

Buncher Required :
yes

Target / Sample Details :
Dendritic Fibrous Nanosilica, DFNS/TiO_2, Black Gold, Ni_3N nanosheets, Ceria

Whether the experiment is part of PhD work ? :
yes

Name of the PhD student and year of registration :
Charvi Singhvi, 2024

Whether the experiment is part of Post-Doc work ? :
no

information on the past beamtime at PLF :
none

Publication information related to prior work at the PLF :
none

Primary authors : Prof. POLSHETTIWAR, Vivek (Department of Chemical Sciences (DCS),TIFR)

Co-authors : Ms. SINGHVI, Charvi (TIFR) ; Ms. GUNJAN, Sharma (TIFR Mumbai)

Presenter : Prof. POLSHETTIWAR, Vivek (Department of Chemical Sciences (DCS),TIFR)

Session classification : --not yet classified--

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