

# Study of zirconolite ceramic compositions through swift heavy ion irradiations from 15 UD tandem pelletron for immobilizing nuclear wastes

*Thursday 18 July 2024 14:45 (15 minutes)*

Low and high energy radiation resistance behaviour of synthetic compounds to immobilize HLWs is made out on zirconolites for radiation and thermal stability besides high loading capacity on incorporation of lanthanides and actinides, maintaining crystallinity of host element. Nuclear energy significantly contributes to global energy needs from low carbon emissions providing clean environment but spent nuclear fuel poses threat to ecological and environmental safety. Over a period, novel nuclear waste forms have been evolved to immobilize high level wastes. Swift heavy ion induced effects on Nd-doped and Ce- & Y-doped zirconolites as a function of temperature through irradiation from a 15 UD tandem pelletron accelerator beam facility are examined for structural changes. The doped zirconolites have been found stable after swift heavy ion irradiations making them potential candidates for immobilization of radioactive wastes and their usefulness in nuclear reactor engineering.

## Alternate track

1. Heavy Ions

## I read the instructions above

Yes

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**Session Classification:** Technology and Industrial Applications

**Track Classification:** 17. Technology Applications and Industrial Opportunities