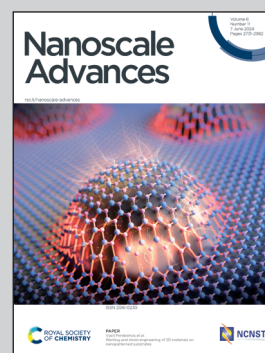


Showcasing research from Tritium Laboratory Karlsruhe, Institute of Astroparticle Physics, Karlsruhe Institute of Technology, Baden-Württemberg, Germany.

Demonstration of tritium adsorption on graphene

The conceptual mechanism for the tritiation of graphene is depicted in the showcase image. Initially, molecular tritium undergoes beta-decay, which yields T and  $^3\text{He}$  in atomic or ionic final-states, with eV kinetic energy. The electrons from the decay, with kinetic energies at the keV level, ionize and dissociate further  $\text{T}_2$  molecules. Subsequently, these primary and secondary products are able to chemisorb to the graphene layer. Using inline resistivity measurements and offline Raman-microscopy it was demonstrated that tritiation of this 2D-material was achieved.

As featured in:



See Genrich Zeller *et al.*,  
*Nanoscale Adv.*, 2024, 6, 2838.