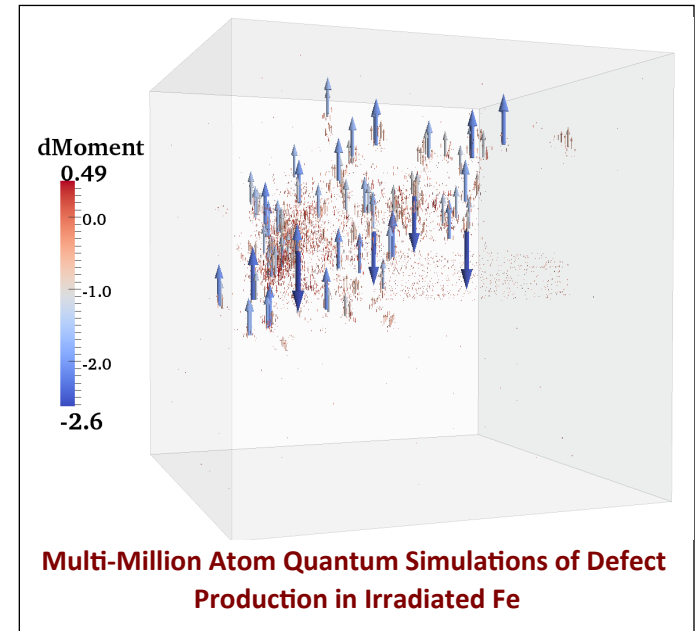


The Center for Defect Physics (CDP) aims to develop a quantitative understanding of the mechanisms of defect formation, evolution and interactions that determine material behavior under irradiation. This research will provide the knowledge base and validated models of the critical parameters and processes that will accelerate the development of radiation tolerant materials for use in the extreme environments encountered in next generation nuclear energy systems.



The CDP is using novel nano-scale experimental and quantum-informed theoretical techniques to probe the processes that control ***Defect Formation and Short-Term Evolution Under Irradiation*** and ***Dislocation Interactions with Radiation Produced Defects*** in iron-based alloys. By achieving unprecedentedly small experimental and large theoretical length scales, the CDP provides fundamental understanding of the controlling unit events.