

# Collision cascades in the presence of dislocations

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Since the first calculations of collisions cascades, there has been a large amount of data compiled for the formation of defects in metals and semiconductors due to energetic primary knock-on atoms with energies from a few eV to several hundreds of keV. Most of the calculations existing in the literature are performed in pristine samples. Only a few examples exist where collision cascades are performed next to grain boundaries and even less next to dislocations.

In this presentation, we review a few of the latest calculations of irradiation of Cu and Fe in the presence of edge dislocations. We observe that, in the case of f.c.c. metals such as Cu, the presence of the dislocation enhances the formation of stacking fault tetrahedra defects and strong interactions between self-interstitial clusters and the dislocations are also observed including change of orientation of motion of these clusters. In Fe the most striking effect is the induced motion of edge dislocations by the shock wave produced by the collision cascade as well as the enhanced formation of vacancy clusters.