

## Videos' descriptions

Video 1. Evolution of dislocations that appeared at free surface and propagated along the sharp A–M interface with a misfit strain of 0.1 in the  $x$  direction.

Video 2. Evolution of parallel dislocation systems in austenite under prescribed transformation shear strain in the martensitic part of a sample.

Video 3. Coupled evolution of the phase transformation order parameter  $\xi$  and corresponding dislocation order parameter  $\eta$  for the interface width  $\bar{\Delta}_\xi^* = 7.37$  and the driving force  $X = 0.008$  for initially coherent A-M interface in a half of a sample for times  $0 \leq \bar{t} \leq 120$  (Page 1) and  $514 \leq \bar{t} \leq 845$  (Page 2).