

## **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: FIB-SEM 3D reconstruction of a representative Ni-20Cr sample after corrosion in molten salt, showing the interlinked voids along the GB.

File Name: Supplementary Movie 2

Description: FIB-SEM 3D reconstruction on a larger volume in representative Ni-20Cr sample after corrosion in molten salt showing the gigantic wormhole network along the GB.

File Name: Supplementary Movie 3

Description: Animation showing the DIGM process.

File Name: Supplementary Movie 4

Description: Monte Carlo simulation to visualize the dual role of DIGM on the salt penetration efficiency.

File Name: Supplementary Movie 5

Description: FIB-SEM 3D reconstruction of a representative 316L stainless steel (SS) sample after corrosion in molten salt showing the interlinked 1D penetrating voids along the GB.

File Name: Supplementary Movie 6

Description: FIB-SEM 3D reconstruction of a representative Incoloy 800H sample after corrosion in molten salt, showing the interlinked voids along the GB.

File Name: Supplementary Movie 7

Description: FIB-SEM 3D reconstruction of a representative CrMnFeCoNi high-entropy alloy (HEA) sample after oxidation, showing the interlinked 1D oxide along the GB.

File Name: Supplementary Movie 8

Description: TEM tomography reconstruction of a representative Ni-4Al sample after corrosion in Rhines pack condition, showing the interlinked 1D oxide along the GB.