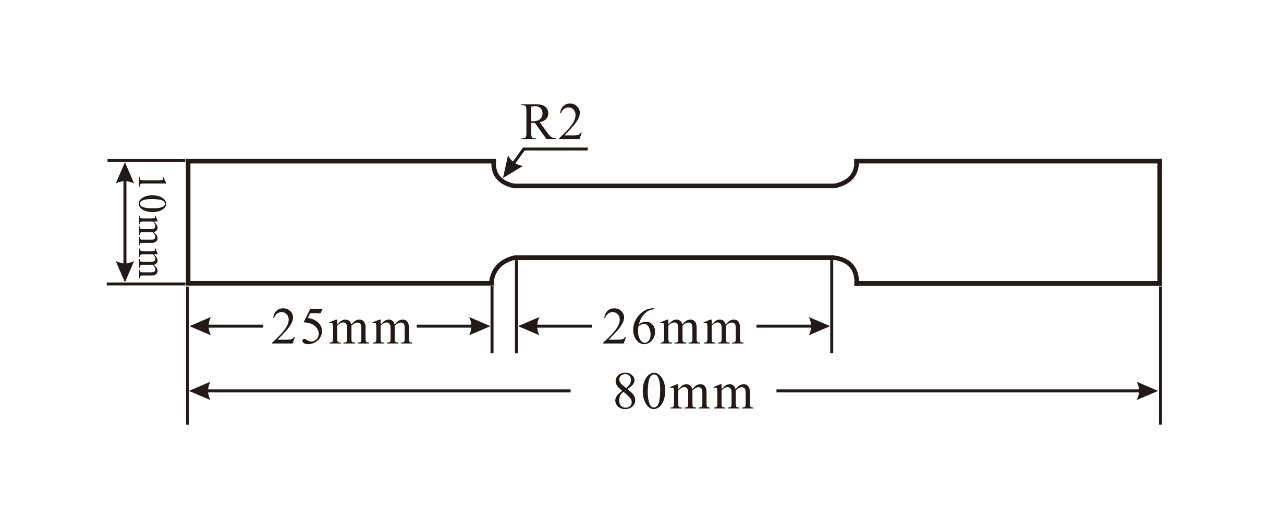
**Supplemental Material (SM)**

**The fatal defects in cast Al-Si alloys due to Sn addition**

Yao Xiao1, Jicheng Wang3, Qianyu Deng3, Li Feng3, Dianming Peng3, Hui Feng4, Kai Li1, 2, \*, Yong Du1, 2

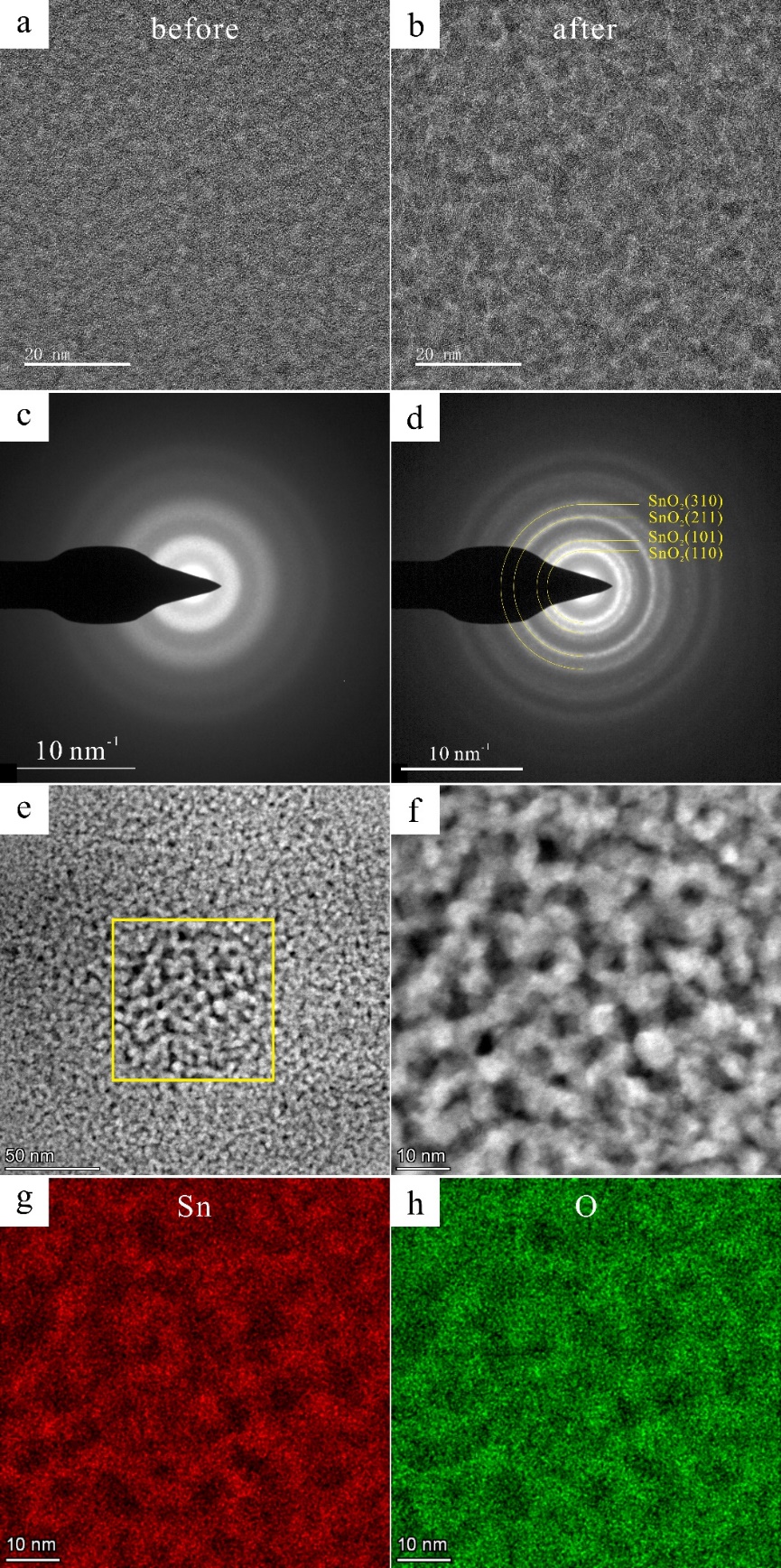
**Preparation of** **tension sample**



**Fig.S1** The size of tension samples

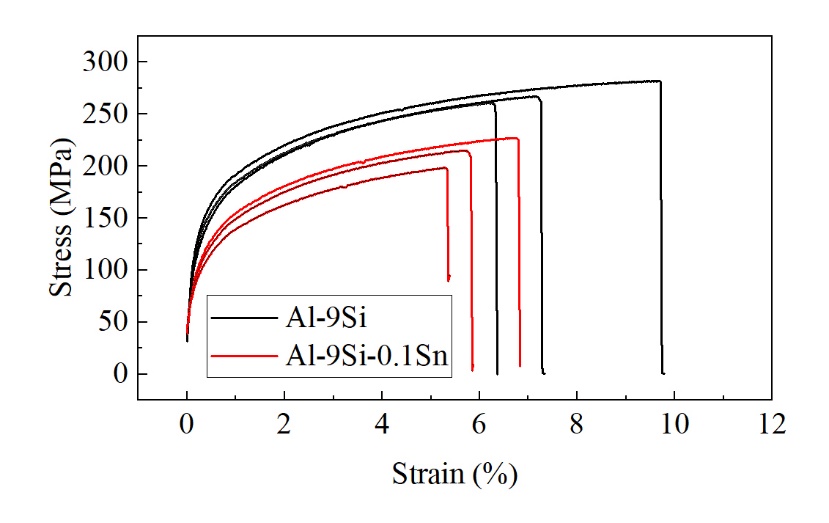
**The characterization of amorphous crystallization**

After electron irradiation for seconds, the amorphous structure crystallized, and the lattice patten gradually appeared (Figs.S2a and b). Some polycrystalline rings were also appeared according to corresponding FFT images (Figs.S2c and d).



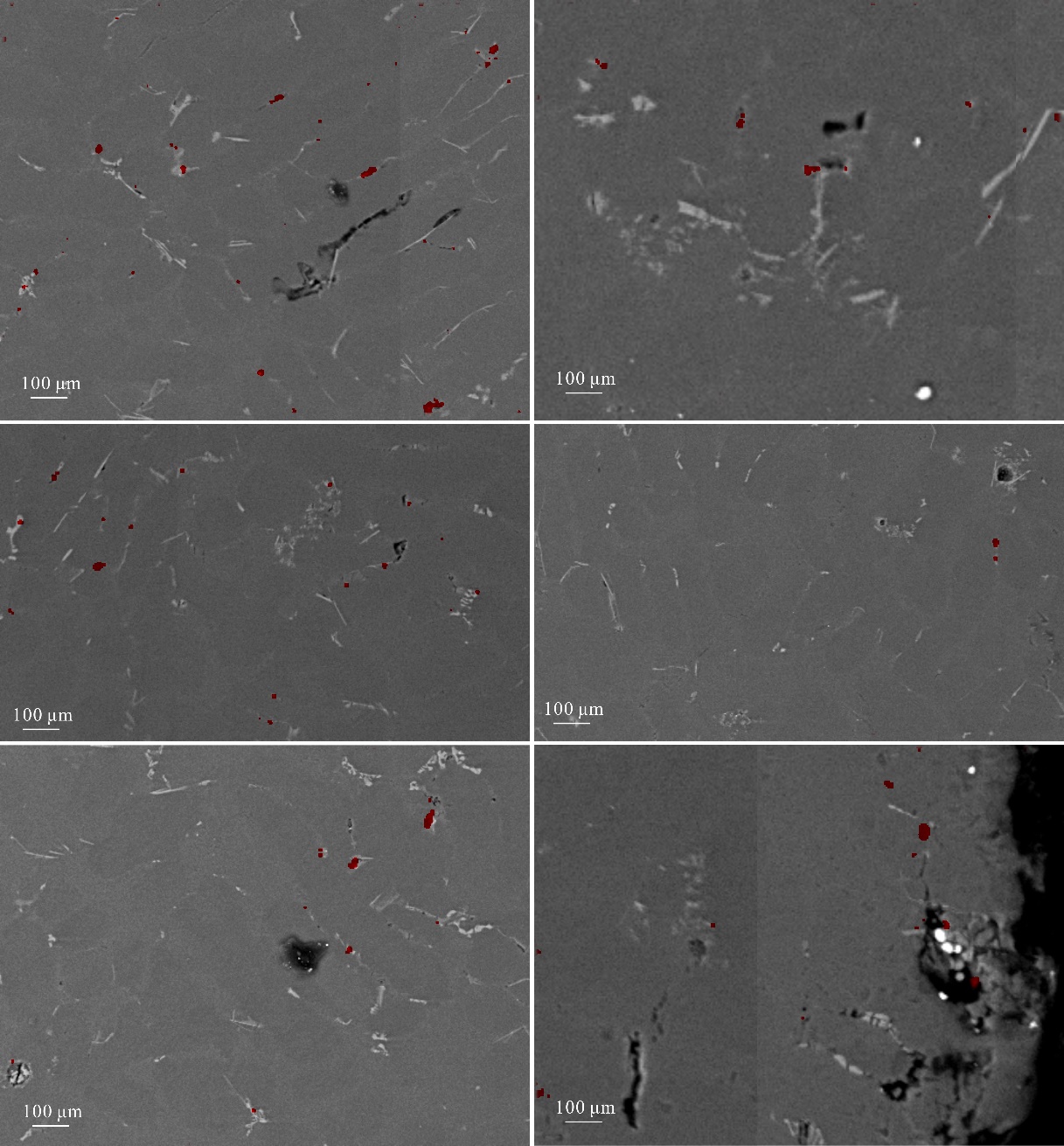
**Fig.S2** The crystallization of amorphous. (a)The HRTEM image before electron irradiation; (b)The HRTEM image after electron irradiation; (c) The SAED before electron irradiation; (d) The SAED after electron irradiation; (e-f) The HADDF-STEM images after electron irradiation; (g-h) The EDS mappings of (f).

**The tensile properties of all samples**



**Fig.S3** The stress-strain curves of Al-9Si and Al-9Si-0.1Sn samples.

**The contribution of Sn in tensile samples**



**Fig.S4** The enlarged details information of fig.4f in text.