Supporting Information

Resistance Driven H_2 Gas Sensor: High Entropy Alloy Nanoparticles decorated 2D MoS_2

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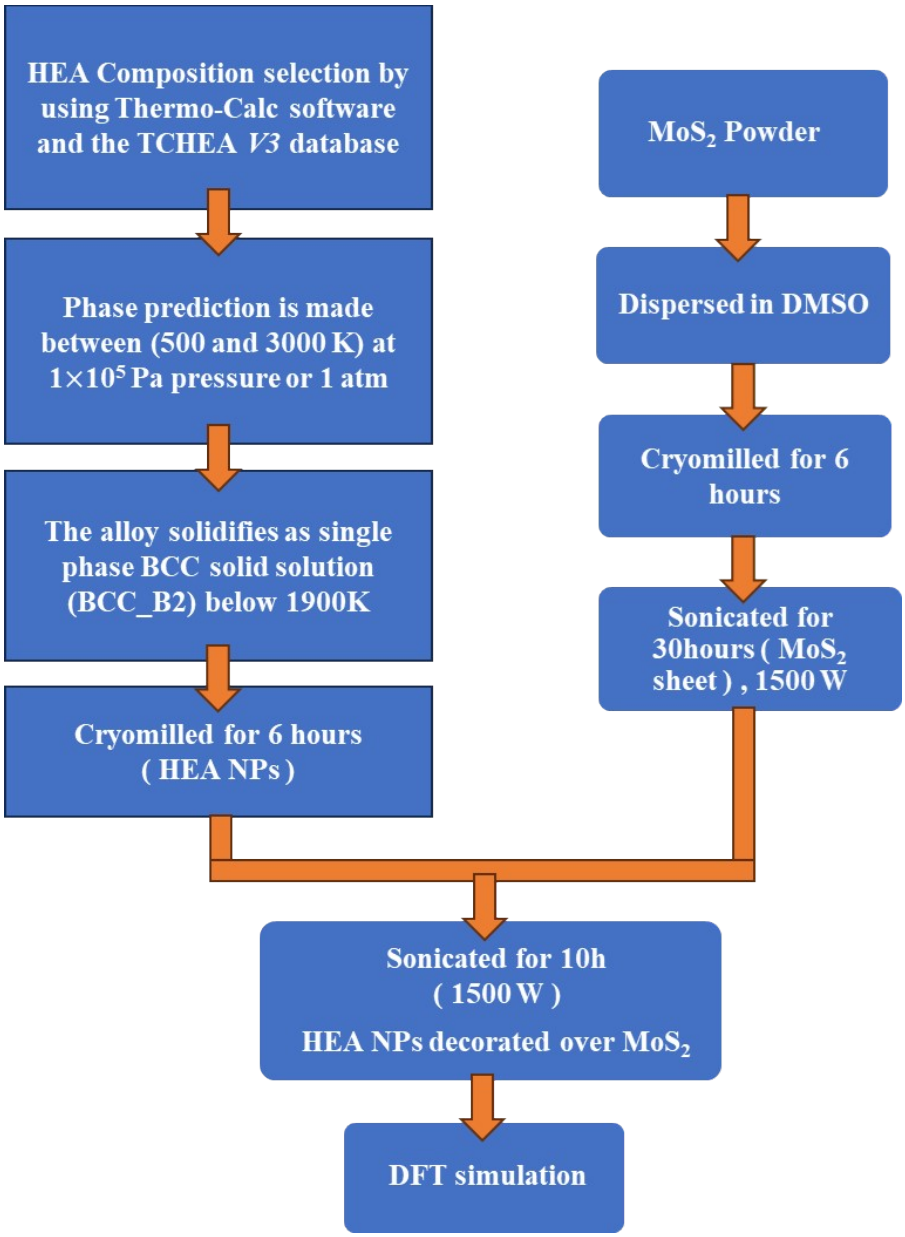

Fig. S1 Materials design process and its accompanying consistent experimental methodology

Equilibrium fractions of the phases present in 1 mole of $Ti_{20}Zr_{20}V_{20}Nb_{20}Hf_{20}$ HEA system were estimated using Thermo-Calc software and the TCHEA V3 database. The phase prediction is made between (500 and 3000 K) at 1 atm. The alloy solidifies as BCC solid solution (BCC_B2) below 1900 K, as presented in Figure S2, and is stable down to 900K.

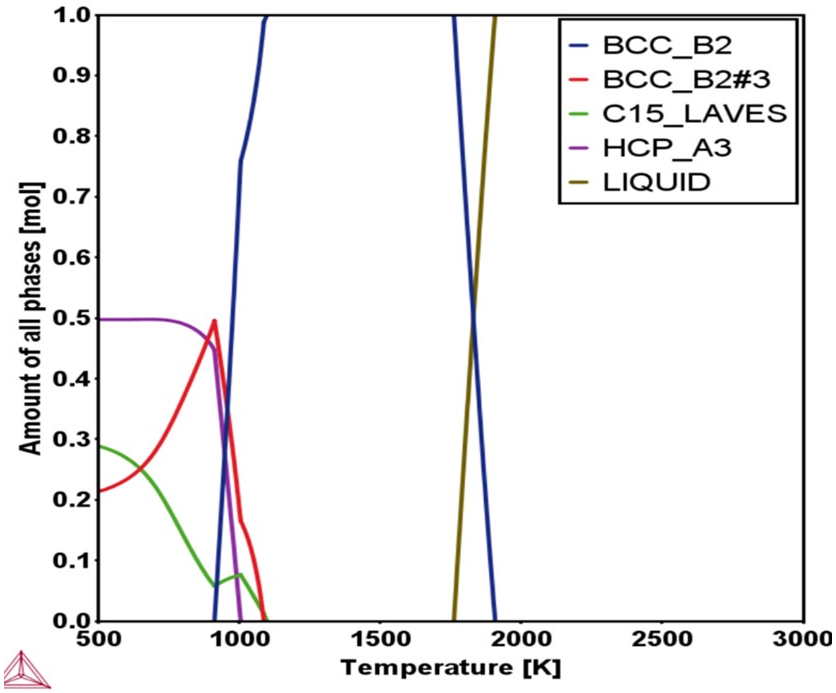

Fig. S2 Equilibrium phase fraction of the $Ti_{20}Zr_{20}V_{20}Nb_{20}Hf_{20}$ HEA as a function of temperature calculated using the TCHEA3 database.

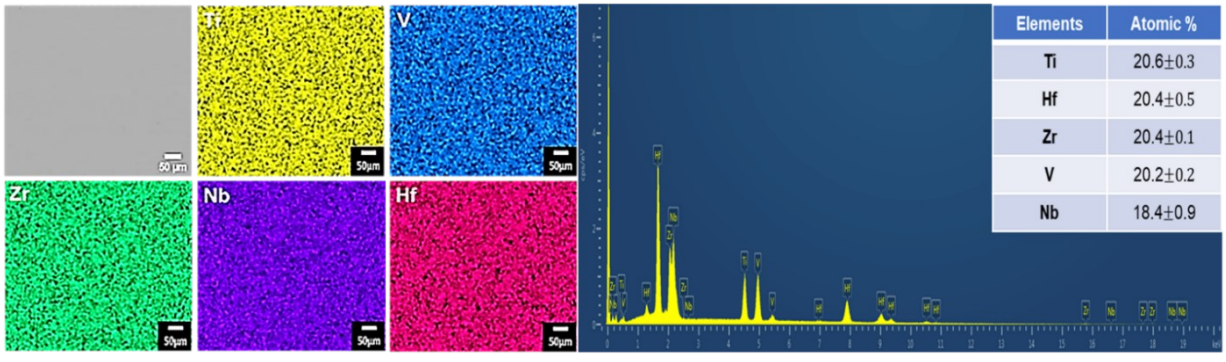

Fig. S3 Backscattered SEM micrograph and EDS mapping of homogenized $Ti_{20}Zr_{20}V_{20}Nb_{20}Hf_{20}$ alloy.

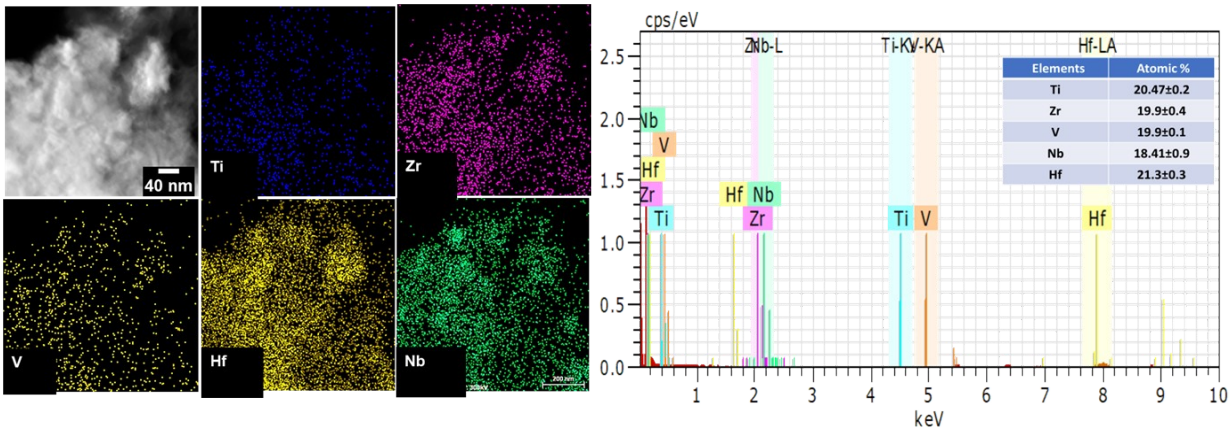

Fig. S4 EDS and Elemental mapping of HEA NPs.

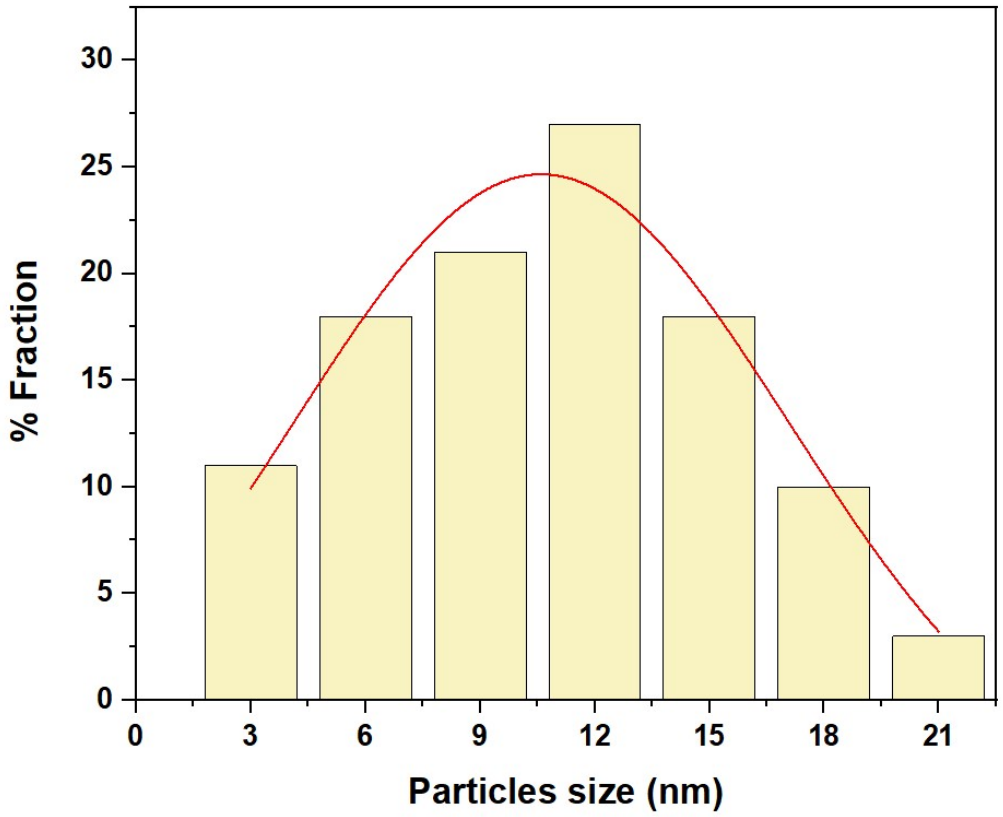

Fig.S5 Particle size distribution of HEA nanoparticles using TEM.