



## Experiment Report Form



	<b>Experiment title:</b> Nanometallurgy in levitating droplets: high entropy nanoparticles characterisation using pair distribution functions	<b>Experiment number:</b> CH-5897
<b>Beamline:</b> ID31	<b>Date of experiment:</b> from:26.11.2021 to:29.11.2021	<b>Date of report:</b> 16.02.2022
<b>Shifts:</b> 9	<b>Local contact(s):</b> Veijo Honkimaki	<i>Received at ESRF:</i>
<b>Names and affiliations of applicants (* indicates experimentalists):</b> *Dr. Kirill Yusenko (BAM, Berlin, Germany) *Dr. Adam Michalchuk (BAM, Berlin, Germany) *Dr. Ana Buzanich (BAM, Berlin, Germany) *Tufan Cakir Cafer (BAM, Berlin, Germany)		

### Report:

Due to CORONA regulations, our experiment has been re-scheduled several times.

In the frame of our experiment, we performed pdf study of several sets of nanoparticles prepared using sputtering of multimetallic targets in ionic liquids. 5,6,7 and 12-component alloys were characterized as synthesized in sealed capillaries. After complete characterization of as prepared alloys, we performed time-resolved study under air to investigate air stability and aggregation of nanoparticles under air (oxygen and air). In total, 20 multicomponent systems were characterized. Here, we show fast oxidation of Cu-based nanoalloys dispersed in ionic liquids and high stability of PGM-based alloys. Further analysis of pdf curves will be performed to support of our EXAFS studies (BAMline, BESSY II facility).