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Type: **Invited talk**

Keynote Speech #7: Unveiling the mystery of the ancient hare's fur tea-bowl glaze: Evidence for doping through advanced manipulation in the creation of ϵ -Fe₂O₃ films in high fired porcelain

Friday, November 24, 2023 9:00 AM (35 minutes)

In the field of ancient ceramics study, several advanced characterization techniques including XRD refinement, Raman mapping, TEM-EDS, SEM-EBSD, SR-based XAS and Mössbauer spectroscopy etc. firstly combined with theoretical calculation based on Density Functional Theory (DFT) to develop a novel strategy for providing detailed structural information and giving the most stable structural models of crystals, thus, our work would enlighten the deep-going and systematic investigation of the ancient ceramics. A major breakthrough has been achieved in this work for proving high-alumina clay introduced Al in glazes, which doped Al into ϵ -Fe₂O₃ lattices and thus stabilized the metastable polymorph. This work deepened the understanding of high-alumina, high-calcia, high-fired glazes and their subtle firing manipulation technology, which would lead to inspiration to the new field in materials synthesis.

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Session Classification: Production Techniques