Contribution ID: **80** Type: **Talk**

Incommensurately modulated structure and phase transitions in K4CaSi6O15

Thursday, 17 March 2022 10:20 (20 minutes)

In a previous series of experiments to decipher the number of existing ternary phases in K2O-CaO-SiO2 system, we proved the presence of K4CaSi6O15 as a stable compound at ambient conditions and solved its crystal structure. Recently, we further revealed that the compound undergoes two structural phase transitions with increasing temperature.Diffraction data collected between 462 K and 666 K show satellite reflections, which suggest that the phase is 3+2-dimensionally modulated.

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Session Classification: Crystal Physics

Track Classification: Main conference: Solid State Physics and Crystal Physics