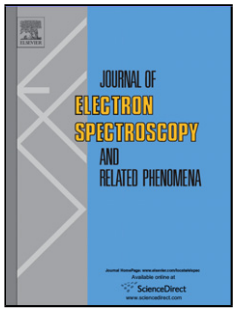

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Cathodoluminescence spectra recorded from surfaces of solids with hydrous molecules

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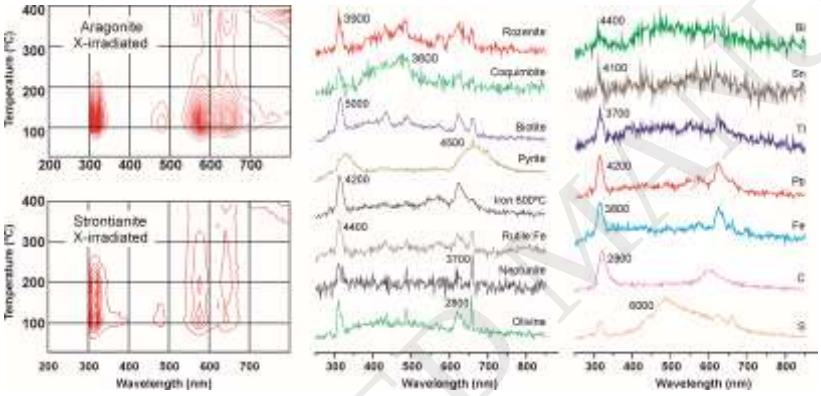
GRAPHICAL ABSTRACT



HIGHLIGHTS

(1) Attached hydroxyl groups are universally present in solid samples kept in environmental conditions being potentially active luminescence emitters.

(2) Cathodoluminescence spectra of very different sixty hydrous solid materials exhibit constant peaks at 315 nm and 620 and 650 nm.

(3) Iron bearing materials, such as biotite, olivine or native iron (Fe 100%) show appreciable cathodoluminescence spectral bands.

(4) CL spectra are associated with hydroxyl groups (315 nm) and water molecules (620 and 650 nm) as precursors of non-bridging oxygen hole centers.

(5) These relationships between CL emissions and hydrous defects are important uses using luminescence techniques.