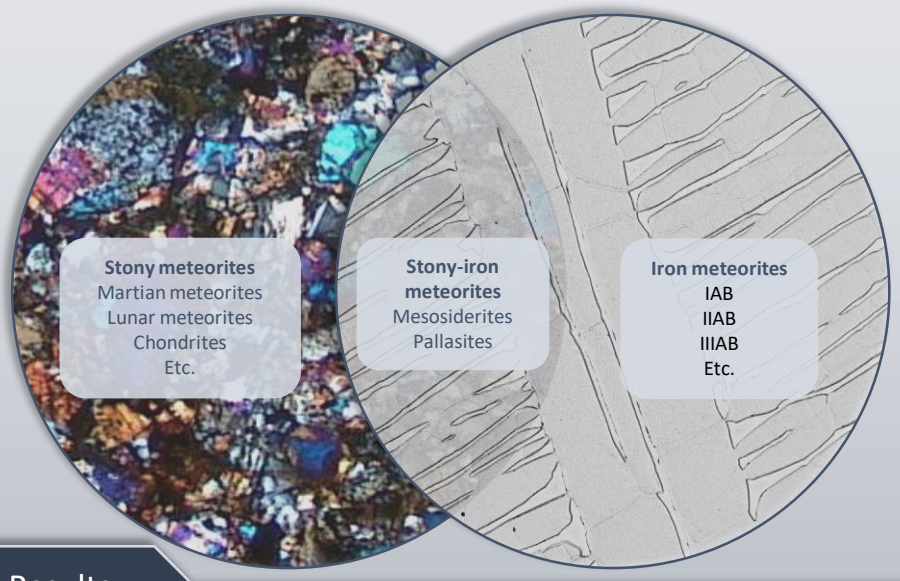
Classification of four mesosiderites and implications for their formation

LUND UNIVERSITY

Aim

- Classify four mesosiderites
- Study and classify textures
- Link textures to mesosiderite history



Results

Four mesosiderites fully classified…

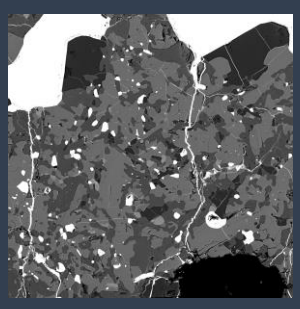
QUE 86900 as an A1 mesosiderite
MAC 88102 as an A4 mesosiderite
Lamont as a B4 mesosiderite
Acfer 265 as an A1 mesosiderite

Possible shock textures and impact related textures found

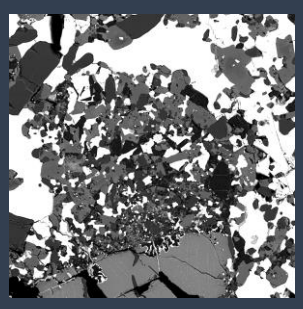
Melt droplets in QUE 86900
Immiscible silicate quench emlusion in QUE 86900
Shock lamellae in cristobalite and anorthite

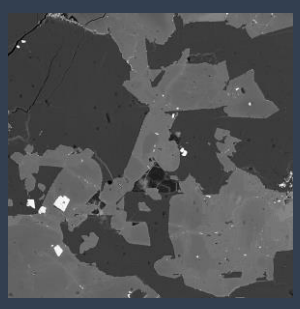
The samples

Acfer 265

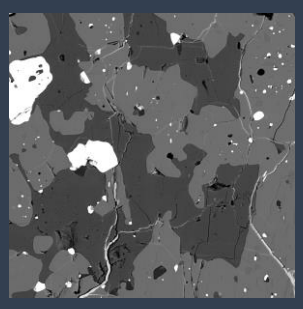


QUE 86900





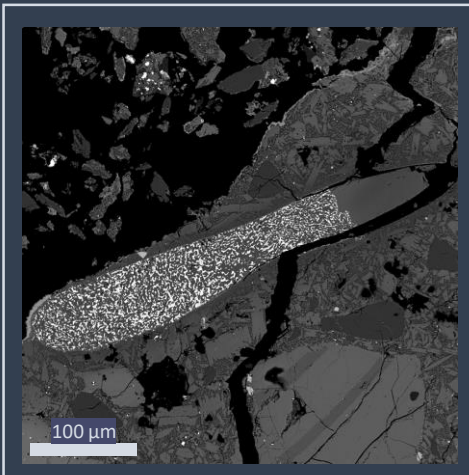
Lamont



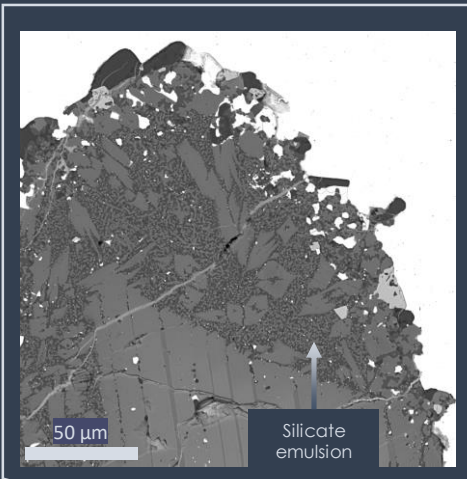
MAC 88102

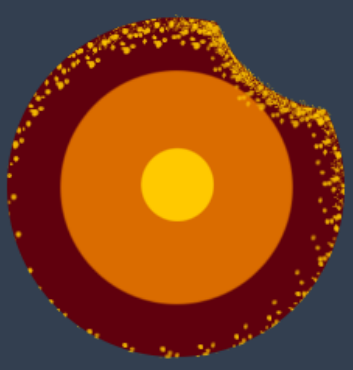
Interpretation

Melt droplets are ejected from impact site and settle into ejecta layers.

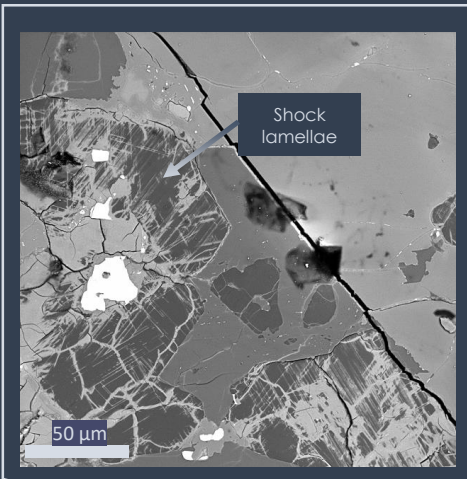


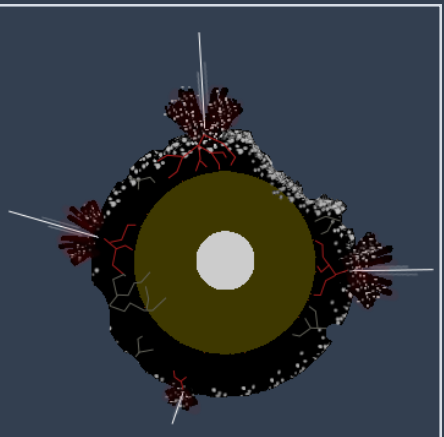
Heat from impacts melt ejecta layers, followed by rapid quenching.





Later impact events completely melt some breccias. Melting is followed by shock as the parent body accretes more material.





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