

## Percolation threshold of Fe-S eutectic melt in peridotite matrix determined by in situ electrical conductivity

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The connectivity of Fe-S melts has been investigated experimentally by in situ electrical conductivity measurement technique. Measurements were conducted using a cubic pressure cell in a DIA-type high-pressure apparatus at 1 GPa. In the temperature condition above the eutectic melting point in the Fe-FeS binary system (~1253K) and below the melting point of KLB1 (~1523K), connectivity of Fe-S eutectic melt was established when volume fraction of Fe-S melts is over 5 %. Whereas in the case of temperature condition above 1523K, the connectivity was lost, even if volume fraction of Fe-S melts reaches to 26 vol. %. Conductivity results suggest that generation of silicate melts cut the connectivity of Fe-S eutectic melt in peridotite matrix. We conclude that metal segregation switches from permeable flow to iron droplet as soon as silicate portion in primordial planetesimals partially melts.