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Petrographic analyses of the Tissint meteorite. A new shergottite fall.

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In 2012 fragments of a new martian shergottite fall were found in the maroccean desert close to the town Tissint [1]. It represents the freshest martian sample we have in our collections to date. Our preliminary petrographic investigation included light microscopy, SEM and Raman spectroscopy. The basaltic texture show common olivine xenocrysts in a pyroxene-feldspar matrix. All crystals (xenocrysts and matrix minerals) show an Fe-poor core surrounded by an irregular shaped Fe-enriched rim. Some of the olivine xenocrysts contain trapped melt pockets of their respective host melt. Complex schock veins are common and show relative displacements of more than 100 microns. Larger melt pockets, which might represent shock melts, contain a high amount of large spherical voids with migth still contain trapped gas. Fe,Ti-Oxide intergrowths will enable to estimate oxygen fugacities. Smaller fragments show moderate wheatering effects which most likely occurred on Earth.

[1] Garvie et al, 2012. MetBull 100, Meteoritics & Planetary Science.

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