FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

MLL-KOLLOQUIUM

Donnerstag, 09.01.2020, 16^{15} Uhr

Hörsaal der LMU in Garching, Am Coulombwall 1
Treffen zum gemeinsamen Kaffee 16 Uhr

Dr. Gunther Korschinek

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Supernova footprint on the doorstep: ^{60}Fe, ^{53}Mn, and other possible correlations

In our Galaxy, around 1 to 2 supernovae (SN) explode over the course of 100 years. Such a titanic event happened during the last 10 Million years close to our solar system, so to speak on our doorstep. The ejected debris has entered our solar-system, and a fraction lodged on our Earth and on the Moon. Clear signals are long-living radioisotopes, which do not exist naturally or at low amounts on Earth; such as ^{60}Fe ($T_{1/2}$ = 2.6 Ma). After a short summary of measurement results of ^{60}Fe, performed at TU-Munich and at ANU (Canberra), I will present first indications of another supernova-formed radioisotope in deep-sea crusts, ^{53}Mn ($T_{1/2}$ = 3.7 Ma). The, so called, local fluff (local interstellar cloud), presently imbedding the solar system, could originate from these close-by SNe, hence should comprise ^{60}Fe that enters the solar system now. Search in 500 kg snow from the Antarctica reveals a signal of ^{60}Fe that supports a recent SN-origin of the local fluff.
The time slot where we found ^{60}Fe deposition in crusts and sediments coincides with a drop in Earth's temperature, that happened between 2 or 3 Million years before now, and it enforced glaciations on the Earth. These glaciations are considered the cause for the evolution and development of mankind. Possible correlations will be discussed.

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