**Cosmo24- Workshop description**

Monday 20.05.24, 9:00 – 12:00, Cologne University

Room 0.03, Building 310, Zülpicher Str. 49b (will be signposted)

**Workshop on Cosmogenic Noble Gases**

Cosmogenic noble gases have been amongst the first nuclides used for terrestrial applications of cosmogenic nuclides, starting in an exotic niche some 50 years ago, broadening and accelerating since the late 1980s. Their application is customarily performed with multi-purpose noble gas laboratories, few labs are tailored for cosmogenic methodology. Noble gases take a special role in cosmogenic methodology since, until recently, all noble gas nuclides used are stable. Having as consequence that in principle surfaces of all ages can be dated and ancient paleo-erosion rates can be obtained; on the downside the consequence is that geochemical components in a sample, which may interfere with the cosmogenic signal, do not decay away. Recently the terrestrial noble gas toolbox has been supplemented by one short lived radioactive nuclide and one nuclide lacking interfering geochemical components. Generally the application of noble gases for cosmogenic methodology requires some knowledge about element specific noble gas geochemistry, (non-)cosmogenic production pathways and diffusion.

The workshop will cover the basics on noble gas properties, noble gas geochemistry and noble gas analysis of which users of this tool should be aware of. Building on this foundation the specifics of all noble gas nuclides that have been used or suggested for cosmogenic applications (3He, 21,22Ne, 36,38Ar, 78,81Kr and 124-130Xe) will be covered, and their significance for applications discussed.

In the context of the workshop there will be the possibility to visit the local noble gas laboratory, which is customized for cosmogenic methodology.

The workshop is scheduled in the morning such that the other workshops that run on the same day can be attended as well, if desired.

With best regards

Tibor Dunai