

Women in Nanoscience

[Home](#)[About Us](#)[Women in Nano Blog](#)[Photo Gallery](#)[Employment Opportunities](#)[More](#)

Women in Nano Blog

« [Back to Women in Nano Blog](#) **Do you really know how old that rock is?** « [Older Entry](#) | [Newer Entry](#) »

Posted on July 18, 2015 at 11:45 AM

Zircon (zirconium silicate) is commonly used in geochronology, the scientific study of the age of minerals and rocks. Zircon is useful as a geochronometer because its unit cell can accommodate radioactive elements, such as uranium and thorium atoms, without much natural lead ions. This means that all of the lead found in zircon must have been produced through radioactive decay. Geochronologists use the lead-to-uranium ratio of a zircon to estimate the age of the rock in which it was found.

Categories

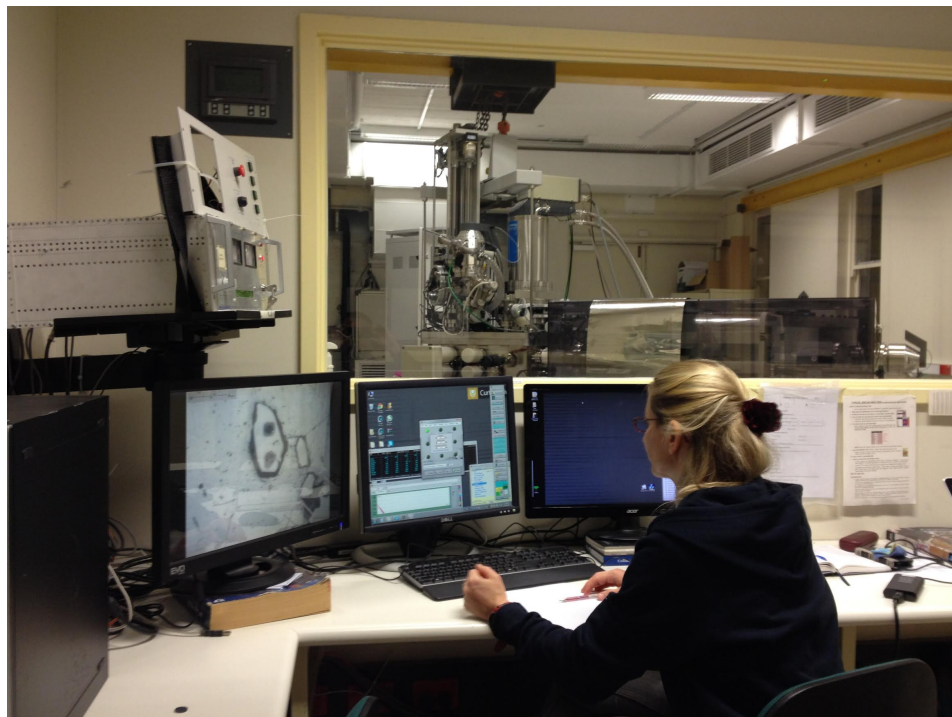
WINspeak (2)

WINnews (275)

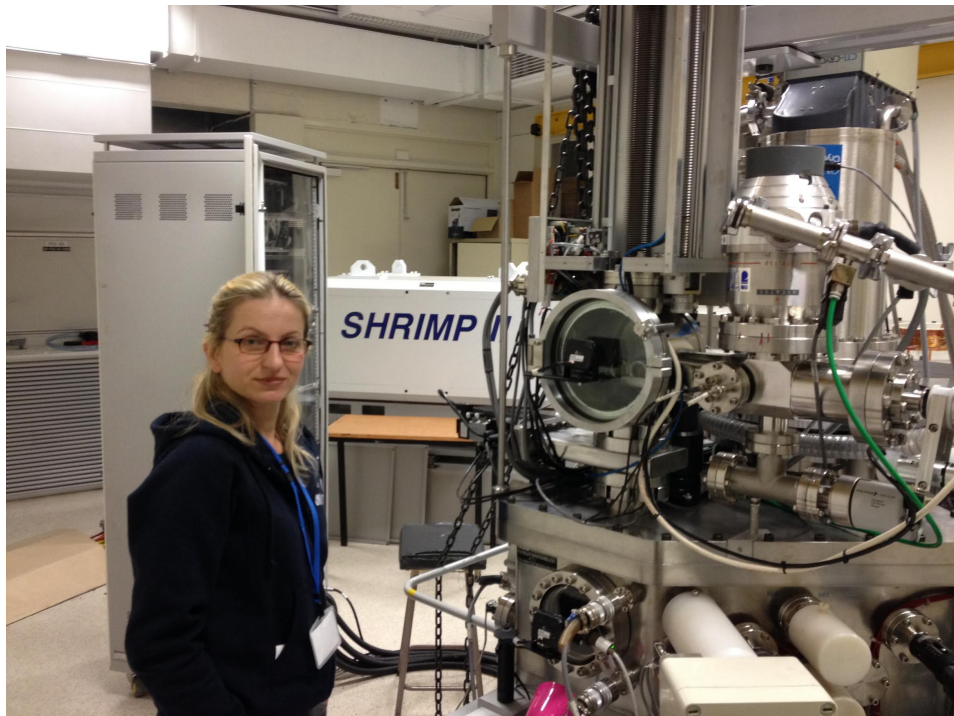


When Zircon is thermal annealed (e.g., through melting the rock), it was thought that zircon would recrystallize and eliminate all of the lead, which would reset the zircon "clock" to a 'zero-lead' state. However, according to a study by [Prof. Monika Kusiak](#), an associate professor at the Polish Academy of Sciences, this

is not the case. In a recent article published in [PNAS](#), Prof. Kusiak and her team showed that a zircon specimen from the Napier complex of the Enderby Land of Antarctica contains numerous lead spheres that are 5-30 nm diameter. They also showed that the amount of lead content can differ significantly, leading to potential uncertainties in the estimation of rock age by as much as 500 million years, depending on the region of zircon that was analyzed. This work demonstrates the importance of nanoscale heterogeneity in crystals used as geochronometers.



Prof. Kusiak's research focuses on using experimental techniques to study geochronology, geochemistry and mineralogy. She received both the Marie Curie and Group of Eight (G08) Fellowships, and the Gondwana Research Best Paper Award. More information about her research can be found on her website, [here](#).



- Written by Eugene Choi, Edited by Paulette Clancy

(Photo credit: Provided by and used with permission from Prof. Kusiak).

Categories: [WINnews](#)

Like 0

Share

Post a Comment

Oops!

Oops, you forgot something.

Oops!

The words you entered did not match the given text. Please try again.

Name

Already a member? [Sign In](#)

Email

Message



This is my text

[Privacy & Terms](#)

Post Comment

0 Comments

[Contact](#)