

**GAC-MAC London 2021**



**November 1-5, 2021**



**Exploring Geosciences Through Time and Space**  
**Explorer les géosciences à travers le temps et l'espace**

## **Quantifying Sediment Provenance and Basin Thermal Histories**

*Organizers:* Eva Enkelmann (University of Calgary) and William Matthews (University of Calgary), [eva.enkelmann@ucalgary.ca](mailto:eva.enkelmann@ucalgary.ca)

### **1 day post-meeting Virtual Short Course, Sunday November 7, 2021**

The objective of this one-day course is to introduce geoscientists to the fundamentals of radiometric dating techniques and their use to study sediment basins. New developments in geo- and thermochronology techniques allow effectively dating large quantities of individual grains and the application of multiple methods on single grains. This offers to answer a wide range of geologic questions regarding sedimentary basins. These include: 1) sediment provenance and identify sediment recycling, 2) reconstructing the tectonic evolution of the sediment source region, 3) quantifying maximum and minimum temperature of sediment burial, 4) quantifying timing and rate of basin inversion, 5) determining sediment deposition age, 6) quantifying amount of removed sediment strata or tectonic overburden. Focus will be given to practical aspects that will allow scientists to choose the best method, conduct sampling in the field and core storage facilities, and project budgeting and time planning.

*Topics covered in this short course:*

1. Differences between geo- and thermochronology
2. Application of geochronology and low-temperature thermochronology to basin strata
3. Multi-method dating of detrital minerals
4. Common tools for data analyses, data presentation and interpretation
5. Thermal history modelling of basin strata
6. Sampling strategies, what and how to sample, budget, and time considerations

*Intended audience:* Industry, Government and Academic Researchers, Students

*Sponsors:* University of Calgary

