

Soleil experiment and my stay in France by UJ Physics MSc student Prosper Ngabonziza

By the end of November, 2010, I did a synchrotron radiation experiment in collaboration with my supervisor Dr Doyle and co-supervisor Dr Carleschi. We did this experiment at Soleil synchrotron radiation in Paris, France.



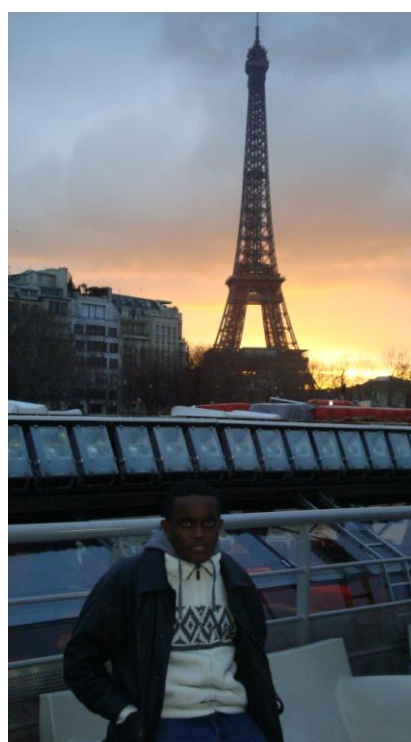
Prosper in front of the SOLEIL Synchrotron facility in France.

We run this experiment on a period of six days, from 23rd to 28th of November, 2010. During this period, we measured high-resolution Fermi surface maps at different incoming photon energies, ranging from 60 eV to 110 eV (UV), with both linear horizontal and vertical polarization of incoming light. We employed a low temperature sample of ~ 5 K, energy and angular resolutions of 7 meV and 0.1° , respectively. This measurement were done on three different samples of $\text{Sr}_4\text{Ru}_3\text{O}_{10}$. This ARPES experiment was crucial in determining electronic origin of the expected quantum critical metamagnetic transition in $\text{Sr}_4\text{Ru}_3\text{O}_{10}$ and it gave comprehensive results for the understanding of the electronic origin of the magnetic ground state of this compound.



Prosper's experimental setup in SOLEIL.

After completing the experiment at Soleil synchrotron radiation, I stayed Paris two weeks more. During my stay in Paris, I visited different touristic sites inside and outside Paris. Some of the places I visited include Eiffel tower, bateaux mouches, avenue des Champs-Élysées and some museum in and outside Paris. It was a great time being in France, moreover, I experienced the snow of Europe.



Prosper with the Eiffel Tower in the background.



Enjoying the cold weather and snow in Europe after the experimental work at SOLEIL was completed. Prosper in front of the Bateaux Mouches. The benefits of studying Physics at UJ...