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The 04th of May 2011

Application for the post : Senior Research Scientist in the Crystallography Group

Dear Dr. Juan Rodríguez-Carvajal,

I am writing to apply for the above post, which has attracted all my attention : it meets 13 year of sustained interest for single crystal neutron diffraction as a regular user on ILL instruments, which often brought highlights or ultimate results in my personal or collaborative research on strongly correlated electron systems.

During my thesis at the LLB, a unique and yet unprecedented (*twinned)* single crystal diffraction study on D9 has brought a highlight result in the study of one prototype advanced materials, namely, a Manganite[*,6] (175 citations). During my post-doc in LNS-PSI and since I am "Instrument Scientist" at the ISIS-facility, UK I have collaborated to single crystal neutron diffraction studies (mostly, of magnetic ordering), by broadening my scientific interest into novel advanced materials such as multiferroics[22,27] or into more fundamental topics like quantum spin systems[10,13,18,26] (*all untwined*). At ISIS, I am now responsible for a powder diffraction beamline (HRPD), after a three year of experience in TOF Laue single crystal diffraction on the SXD diffractometer. Recognized now as being not so well adapted, SXD still enabled me to solve few Physical Crystallography problems[23,25].

Overall, my experience in single crystal neutron diffraction makes me conclude that even on constant wavelength instruments, problems in data analysis caused by *twinning* have unjustly lead to overlook prototype advanced materials (eg. manganites) compared to more exotic ones (eg. multiferroics). The possibility offered to participate to the technical developments (computing, especially) at the ILL goes for me beyond improving the data analysis for the user community. It also meets a strong personal interest for developing a Physical Crystallography program ultimately aiming at revisiting the crystallography or the magnetic structures of prototype (but generally twinned) advanced materials (Manganites, Cuprates, etc…).

In the neutron diffraction world, the combination of the expertise and the instrument suite in the ILL diffraction group represents probably these days the only place and chance to achieve such a goal. I am therefore looking forward for your answer and an opportunity to discuss about such a possibility with you.

Sincerely yours,
Dr. Aziz Daoud-Aladine

* Numbered references refer to those of the publication list