Subject: Fwd: PhD position
From: calzavara <calzavara@ill.fr>
Date: 10/28/2014 08:09 AM
To: Emmanuel FARHI <farhi@ill.eu>

FYI
Yo

-------- Message original --------

Objet: PhD position
Date:2014-10-27 16:20
De:"Dr. Christoph Morkel" <Christoph.Morkel@frm2.tum.de>
À:calzavara <calzavara@ill.fr>
Cc:guarini <guarini@fi.infn.it>

Dear Yoann,
Dear Eleonora,

I am not quite sure, whether it is helpful, to contact H.Schober directly, as it may be countereffective. But if you think so, I will try that at a later stage of the proposal.

My problem is also, that I don`t know, whether a proposal has already been submitted; that would complicate the situation.
Well:
I) The CRISP-report is a tremendous work and to my knowledge absolutely complete. But it is a technical report, whereas the ILL (Schober)rather wants a scientific szenario for the PhD-proposal ("what are you going to do" and not "what is the state of the art"). But of course, there are are a lot of valid scientific arguments in the report to be found, too.
II) The starting point could be the unsatisfactoty data-situation with data, that are decades old (CRISP-references 3,19,26,32,34,42 etc). Especially Fig.3 from Seiffert (42) and Fig.1 from Egelstaff (32) demonstrate the totally unsatisfactory data-situation in the case of H2 and D2, which must be improved urgently.
III) Hence the data-aquisition with the help of much improved modern instruments (IN5, IN6, Brisp) together with an advanced theoretical interpretation (Lovesey(1986),Balucani-Zoppi(1994) and Montfrooij-de Schepper(2010)) will lead to a much deeper understanding of the quantum liquids at hand.
IV) Beyond thermal neutron scattering work, cold neutron scattering from p-H2 is of top scientific interest: The so called pancake-geometry for moderating volumina has found much attention recently! The physics of gaining a cold neutron beam of unprecedented high brilliance from a flat p-H2-moderator (pancake-moderator,about 3cm thickness only) is directly related to the energy-dependent scattering cross section of p-H2 in the cold region below the J=0 to 1 transition of p-H2 at 15meV.
Hence in this thermal to cold region there is urgent need of precise scattering data of liquid p-H2 and its counterpart o-D2. This is exactly

what the PhD-work is aiming at. (The attached two references were given to me by G. Muhrer at the Nausicaa meeting.)

In addition some "political" arguments for the discussion with the decision-makers:
VI) Nausicaa can only work as a collaboration, if there is a balance between the UCN-part (ILL/Munich) and the cold/thermal part (ILL/ Florence). Both areas are to be seen complementary - and therefor need equal PhD-support.
VII) The unvaluable and longstanding experience of the Florence-group with the cryo-hydrogens is indispensable for Nausicaa and will become effective only via a PhD-position in this field.
VIII) A talk at the ILL about the scheduled work on H2/D2 might help to push the decision into the right direction (Eleonora or U. Bafile?)

These are - in short - my possible contributions; especially the last point may help: I gave a short talk about our scheduled UCN-work (15min) and it worked!
So looking foreward to further discussions; feel free to ignore any of my arguments!
With best regards,
Christoph

Attachments:

Batkov-2013.pdf	596 KB
Mezei-2014.pdf	99.2 KB