Dear Masahiko,

Greetings from Perth.

SUMMARY: Are you, or colleagues, interested in using (purchasing, designing, etc) a working electron scattering apparatus and/or spin-polarised electron source? Descriptions are given below. If anyone is interested in any of the apparatus, further details on request. If seriously interested, I suggest a visit to Perth for as long as it takes to actually use the apparatus to establish satisfaction and competency of use!

I am rationalizing the apparatus in my lab because of a decreasing number of research students for the past several years. A number of prospective research students are being attracted to astrophysics. Our ARC Centre of Excellence continues but with only one PhD student and 2 new MSc students from this year. Also we need to apply for research funding for the next three years and the outlook from the Federal Government indicates that the success rate will remain at the usual about 20 % (and that is very low) but also that less funds will be available for 2015 and beyond.

I am keeping and working (with Sergey Samarin) our surface scattering experiments using positrons and spin-polarised electrons. But the apparatuses indicated in the attached photos are seeking good homes.

(i) Photo 3150001 was constructed and used initially in its present form for gas scattering by several people. The apparatus and performance are described in the papers below (and others traceable in their references)

J Phys B: At Mol Opt Phys 30 2845-2858 (1997) Interference and PCI in argon Auger (e, 2e) spectra. DK Waterhouse and JF Williams Rev Sci Inst 68 3363-70 (1997) The performance of a microchannel-plate-based position-sensitive detection system. DK Waterhouse and JF Williams, J Electron Spectrosc Relat Phenom 128 261-270 (2003). Momentum resolution in (e,2e) experiments. DK Waterhouse and JF Williams

(ii) Photo 3150003 indicates the apparatus (with double toroidal and 180 electron energy analysers) used for some inert gas scattering papers. The electron energy analysers are in operating condition. The toroidal analyser was described at length by Julian Lower in the sequential paper following Rev Sci Instrum 78 (2007) 110901. Perspective: An improved double toroid spectrometer for gas phase (e,2e) studies. J. F. Williams The ANU toroid is a scaled version of our toroid. (not the one used by van Boeyen).

(iii) Photo 3150008 was used for zinc scattering with (un) polarised electron sources by Napier.
(a) A diagram of the polarised electron source and transport system is given in J Phys: Conf Ser 212 (2010) 012012 International Symposium on (e,2e) and the 15th ISPCEAC. Electron correlations and spin effects activated by excitation of an inner 3d electron in zinc. D Cvejanovic, S A Napier, J F Williams and L Pravica
(b) For the same apparatus, the electron scattering analysers and photon detector are reported (with figure) in J Phys B At Mol Opt Phys (2007) 40 1323-1329 Negative ion resonances in the autoionizing region of zinc: excitation of the 4s4p3P0,1,2 states. S A Napier, D Cvejanovic, J F Williams and L Pravica

(iv) Spin-polarised electron sources.
Our first good source is described in Rev Sci Inst 68 1708 (1997) Computer-stabilised spin-polarised electron source. PA Hayes, DH Yu, JF Williams and J Furst
Since then we have made several sources for other groups (ANU, Griffiths) and presently have a partially completed source (identical to that used by Napier) which is excess to requirements.

Please forward this email to any interested persons.
Further details can be supplied on request.

Best regards,
Jim

Photo 3150001

Photo 3150003

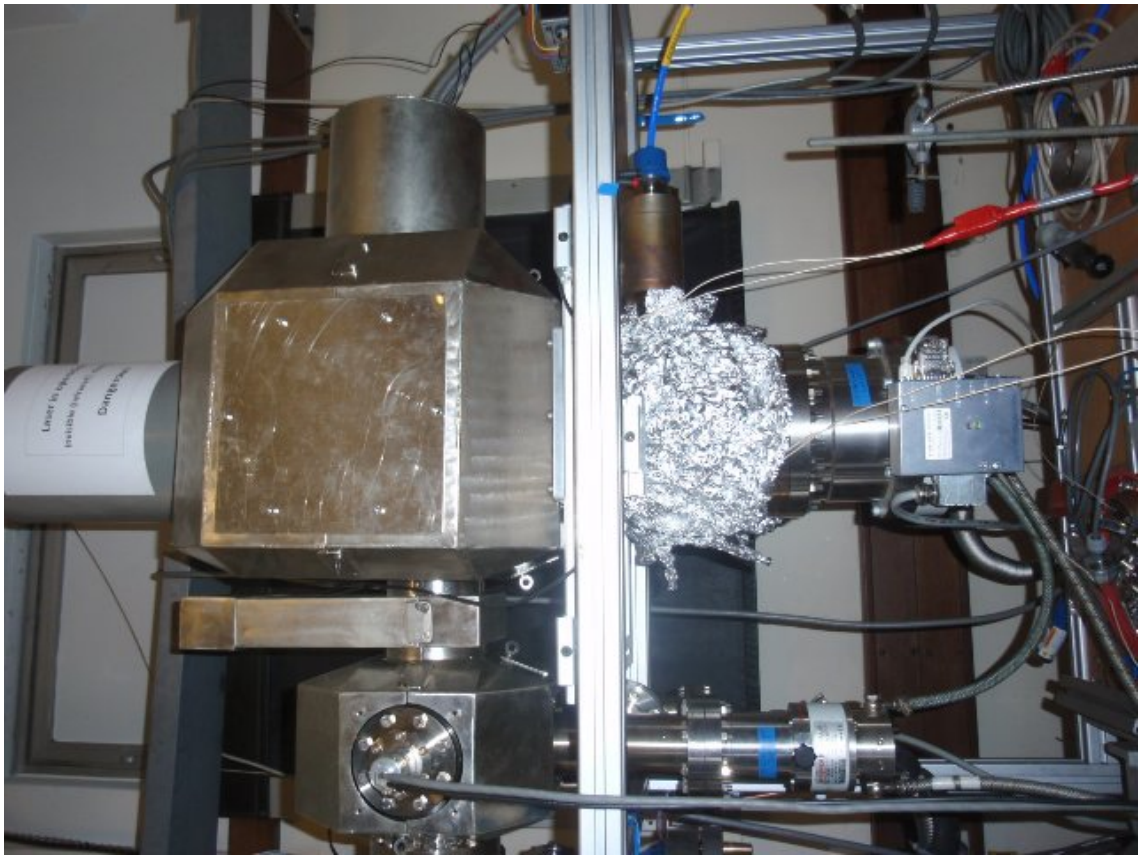

Photo 3150008