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Dear Nick

### **Proposal for the establishment of an EPSRC Network in Plasma Technology**

I write on behalf of the laser group in the School of Chemistry at the University of Bristol (myself, Prof A.J. Orr-Ewing and colleagues) to express our enthusiastic support for the proposal to establish an EPSRC Network in Plasma Technology. As you know, we have particular interests in the use of lasers (both pulsed dye lasers and cw diode lasers) in diagnosing plasmas – especially (but not exclusively) plasmas used in diamond chemical vapour deposition. Our current activities could be considered to fall within any, or all, of the proposed scientific themes 1 (non-equilibrium plasmas at reduced pressures), 2 (fundamental atomic, molecular and surface phenomena) and 4 (robust measurement methods, simulation, etc.). We have active collaborations with, amongst others, Element Six Ltd (laser diagnosis of DC arc jet and microwave plasmas relevant to diamond CVD), Prof Hancock's group at Oxford through our joint EPSRC portfolio award (development of cw diode laser based intracavity absorption methods) and Dr Mankelevich at Moscow State University (modelling the gas phase chemistry involved in a range of diamond CVD environments). Dr Engeln (Eindhoven) has just finished a highly successful sabbatical period in our group, and we intend that Bristol-Eindhoven interactions will develop and strengthen further over the coming years. Our current and future ambitions include diagnosis and modelling of activated B containing hydrocarbon/H<sub>2</sub> gas mixtures, further development of cw laser based diagnostic methods (*e.g.* extending further into the infrared spectral region), and the use of cavity enhanced absorption methods to investigate plumes arising during pulsed laser ablation processes. Our current interests and expertise are probably most relevant to micro- and nano-systems technology and to coatings and surface treatment processes but, clearly, one of the beauties of laser based diagnostic methods is their transferability.

Both Andrew and I are ridiculously busy at this time, and I worry whether either of us would be able to put in the kind of effort that will be needed from the 4 initial theme coordinators. I very much hope you can find 4 stalwarts from elsewhere at this time, but please do feel free to try calling on us to do our bit (if necessary) later in the life of the Network.

With all best wishes,