ESSAY 38: Electron and Proton Resonance Induced by B(3)

I started to think about optically induced ESR and NMR in the late eighties at IBM Kingston, New York, where I was visiting professor in the Clementi environment. After finishing my year there I decided to stay in New York State and become a private scholar, having the intention to forget all about the people who gave me so much trouble in Wales. No longer having access to the supercomputers in Kingston I worked on theory at nearby Port Ewen near the Hudson river. Many papers in leading journals were produced as a private scholar. After a few months working in Royal Holloway College of the University of London (where I was given an honorary but unpaid fellowship) I returned to work as a private scholar in the Hudson Valley near Kingston. Clementi offered me a position as the MOTECC writer and I was allowed to use supercomputers again. During that time I came across a paper by George Wagniere of the University of Zurich on the inverse Faraday effect. That was the first time I came across the Piekara Kielich conjugate product and its ability to use electromagnetic radiation to produce magnetism. Shortly thereafter I was offered a visiting position at the new Cornell Theory Center, but this was unpaid so I spent a lot of time working as a private scholar from home. I allowed Cornell to use my work as publications of the Cornell Theory Center. In one of its quarterly reports to NSF, Cornell Theory Center devoted a whole section to the numerous papers I produced on its behalf in leading journals. I was not told of the existence of this report, it was found by my first wife, who was always a great help. So there is always a certain amount of devious behaviour in academia.

In the Omnia Opera of www.aias.us all the papers are carefully archived so act as source documents leaving no doubt as to the impact of my work. This work gradually evolved into optical NMR, which was taken up by the Warren group at the chemistry department of Princeton University in my early months at Cornell Theory Center. Warren was a referee of one of my papers and invited me to Princeton to advise on experimentation. At about the same time I was offered a year in the University of Zurich as Guest of the University. This was a paid position, a rare occurrence. By the time I took up the Zurich position in the autumn of 1990 the brilliant animation of the inverse Faraday effect by Chris Pelkie was ready. This animation is now on www.aias.us and shows that a circularly polarized laser spins molecules. This is not clear at all in the complicated mathematics of the inverse Faraday effect, and the spinning motion is what gives rise to magnetism. Unknown to me, the idea of the B(3) field, which I developed as a private scholar in about November 1991 back at Cornell from Zurich, was being taken up by Taishi Kurata in Kobe, Japan, who began the development of the various Kurata / B(3) technologies.

In the U. S. and Britain however, the system was totally unable to provide stability or any support, Cornell for example was quite happy to use my work but forgot to pay me. This is why the Kurata / B(3) technologies were never developed in the west, a major historical failing. As usual all they had to do was find a salary as a permanent research associate. As it was I was forced to move to an obscure place called University of North Carolina, Charlotte, a name that will live in infamy in the annals of physics. As usual I outproduced the rest of the department combined with private scholarship but was subjected to the notorious conspiracy known to the world as UNCC (see source documents on www.aias.us). In late 1994 I inferred the technique known as radiatively induced fermion resonance (RFR), in which microwave or radio frequencies are used to induce magnetization through the paramagnetic inverse Faraday effect, the interaction of the spin angular momentum of a fermion with the B(3) field.

It became clear that this technique has great advantages over ordinary ESR or NMR, which works with permanent magnets as is well known. RFR works without magnets,

at much higher resolution, and also produces an original spectrum, or chemical shift pattern. The theory of RFR has been developed in many articles and reviews on the Omnia Opera of www.aias.us. And is straightforward, easy to understand. The experiment for one electron is also easy to set up, consisting of the interaction of a microwave frequency beam and an electron beam. With the advent of a full scale industrial plant based on Kurata / B(3) technology it is hoped that RFR will at last come to fruition. However that will have to be done by small companies, working outside an academic system that sometimes seems incapable of any really useful progress. This is also Kurata=s own point of view, expressed in his acceptance of an AIAS Fellowship in about 2001. This letter form Kurata has been syndicated and is available on the net.