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### **Area of research and research experience:**

Supersonic nozzle expansion plasma process has been exploited to synthesis the magnetic nanoparticles. By controlling the different operating parameters in the thermal plasma torch and oxygen pressure in the chamber, different phases of iron oxides has been prepared. Another route, Green chemical method has been adopted, where polyphenol extracted from the tea leaves acts as a reducing and capping agent for the synthesis of good quality mono-dispersed magnetite nanoparticles. Sample properties have been investigated using XRD, VSM, and other charactisation techniques.

### **Publications (Conference presentation):**

(1) Study of magnetic properties of Iron oxide nanoparticles prepared by supersonic nozzle expansion plasma method, Lavita Sarma, Trinayan Sarma, N. Aomoa, and Mayur Kakati, Poster presentation at **CPP-IPR Workshop on Linear Tokamak Divertor Simulators for PSI Studies, 24-26 November, 2014**, Center of Plasma Physics-Institute for Plasma Research, Sonapur, Assam, India

(2) Green Synthesis of single phase Iron Oxide Nano-particles using Tea polyphenol, Lavita Sarma, K.K. Singh, K. C. Sarma and Mayur Kakati, Oral presentation at **National Seminar on Advances in Physical and Biological Scineces, 6-7 April, 2015**, at Jagiroad College, Morigaon, Assam

(3) Comparative Study of Magnetic Properties of Iron Oxide Nanoparticles prepared by Supersonic Nozzle Expansion Plasma Method and Green Chemical Method, Lavita Sarma, Trinayan Sarma, N. Aomoa, Sidananda Sarma and Mayur Kakati, Poster presentation at **4th PSSI-Plasma Scholars' Colloquium (PSC-2015)** Aug. 6-7, 2015 at the Department of Physics, Jadavpur University, Kolkata.

(4) Investigations on magnetite nanoparticles synthesized by green chemical method , Lavita Sarma, Sidananda Sarma, A. Srinivasan and Mayur Kakati, Poster presentation at **International conference on Magnetic Materials and Applications** Dec. 2-4, 2015 at Vellore Institute of Technology, Chennai.

**Academic achievements:**

**Master of Science: (Physics, Specialization: Solid state Physics) 1998,** Gauhati University

**Bachelor of Science: (Physics Major),** Pass-course (Statistics, Maths.), **1995, Arya Vidyapeeth College, Guwahati** University.

**Class XII: Physics, Chemistry, Biology, Mathematics and English 1992,** Jagiroad College, Jagiroad Morigaon, Assam (AHSEC).

**Class X Science, Mathematics, Gen. Science, Social Studies, English, Geography, Assamese, 1990** Jagi Higher Secondary School, Jagiroad Morigaon, Assam (SEBA)