

# On the Geometrical Gyro-Kinetic Theory

Mathieu Lutz\*

At the end of the 70', Littlejohn shed a new light on what is called the Guiding Center Approximation. The resulting theory is a nice success and it is the basis of all kinetic codes used to simulate Plasma Turbulence emergence and evolution in Tokamak. However, this theory remains a physical theory which is difficult to understand for mathematicians. In this talk I will give some elements in order to provide a mathematical approachable Theory, particularly for the analysis, the applied mathematics and computer sciences communities.

This work has been performed in collaboration with Emmanuel Frénod Emmanuel (University of Bretagne-Sud, Inria Nancy-Grand Est and University of Strasbourg).

---

\*Université de Strasbourg, IRMA, 7 rue René Descartes, F-67084 Strasbourg Cedex, France & Projet INRIA Calvi.