

Mission:

Develop a novel electric drive system for EVs, free of rare-earth magnets, which meets EV performance requirements (efficiency, power density) and that is feasible for mass-production

Focus:

- Design and manufacture an axial-flux variable-reluctance machine, SRM or PMSynRM
- Demonstrate and validate the capabilities of the developed electric drive system by integrating it into a vehicle

Website: <http://www.venusmotorproject.eu>

Coordinator: Jon Madariaga
Total costs: 2,939,899 €
EC contribution: 1,999,491 €
Start date: 1st November 2013
Duration: 36 months

Research Topics and results:

WP3: Design of the electric drive

- Selected SRM over SynRM solution
- Developed analytical tool for designing SRMs
- Developed thermal tools for analyzing SRMs
- Developed 2D and 3D FEM models of SRM
- Developed dynamical model of SRM
- Designed SRM power electronics and control
- Manufacturable design of VENUS motor

WP4: Fabrication of Electric Drive System

Ongoing tasks/objectives:

- VENUS motor prototype manufacturing
- VENUS power electronics manufacturing

Upcoming milestones/deliverables:

- Motor and controller manufactured

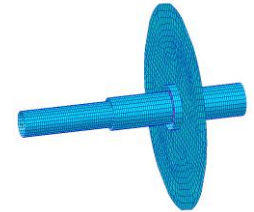
WP5: Vehicle Integration and Validation

- Preparatory work for motor integration: mechanical and electronic adaptation

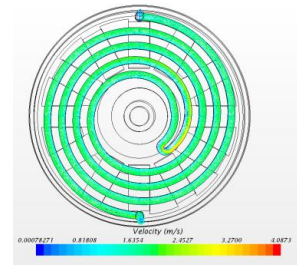
WP6: Industrialization

- Initial manufacturability and cost analysis
- Design refinements for series manufacturing

FEM model of Motor



Cooling System Design



Partial Test-Bench



VENUS Motor Design

