

Models of Simple Iron Cored Electromagnets

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Introduction: This project mainly focuses on creating a model of an iron cored electromagnet, used in the university laboratory. After results verification some other models were designed to get higher momentum.

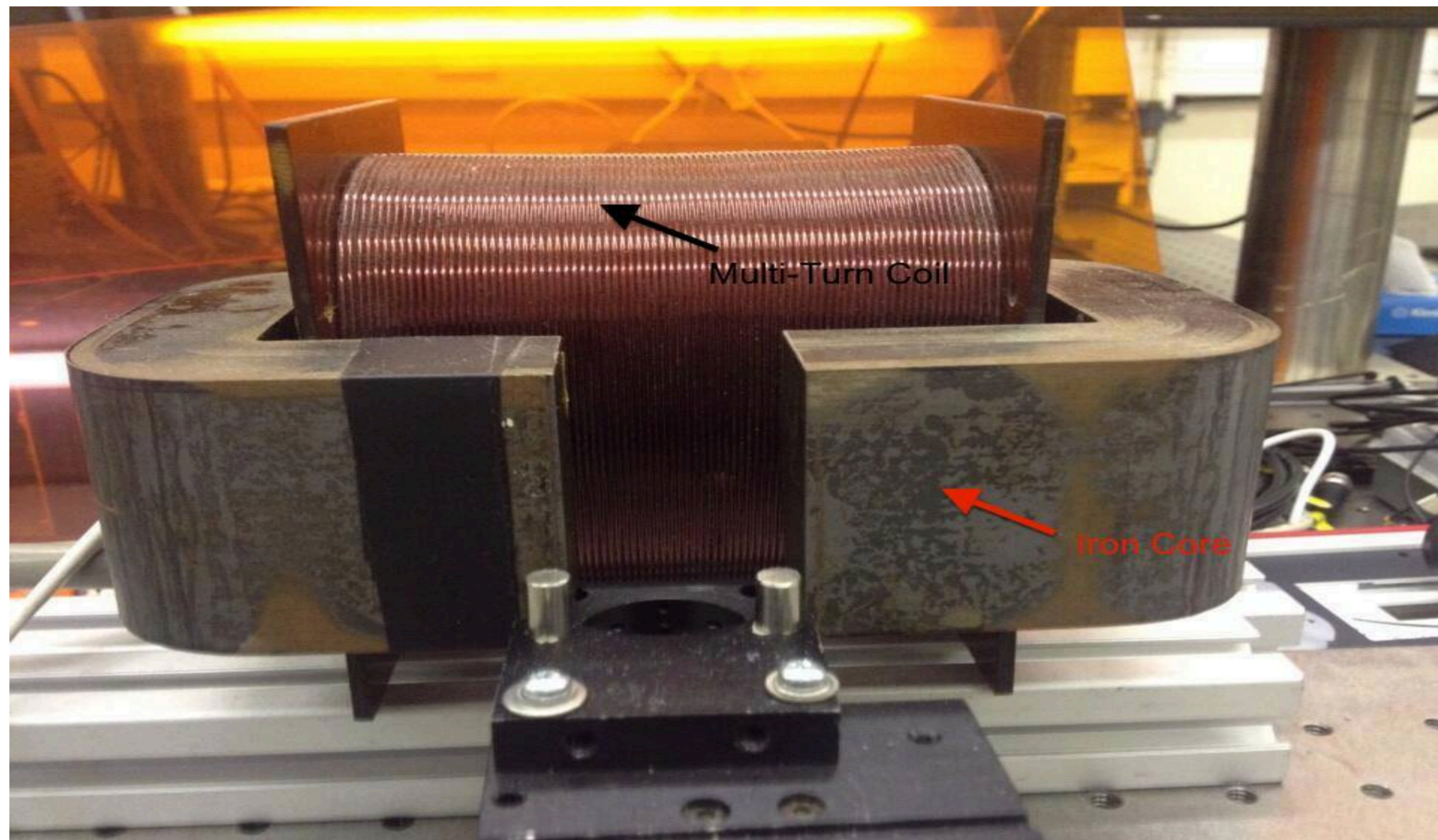


Figure 1. The laboratory electromagnet

Computational Methods:

Interface: Magnetic Fields

- Ampère's Law
- Magnetic Insulation
- Initial Values
- + Multi-turn Coil
- + Electric Insulation
- + Input

Mesh: Normal size

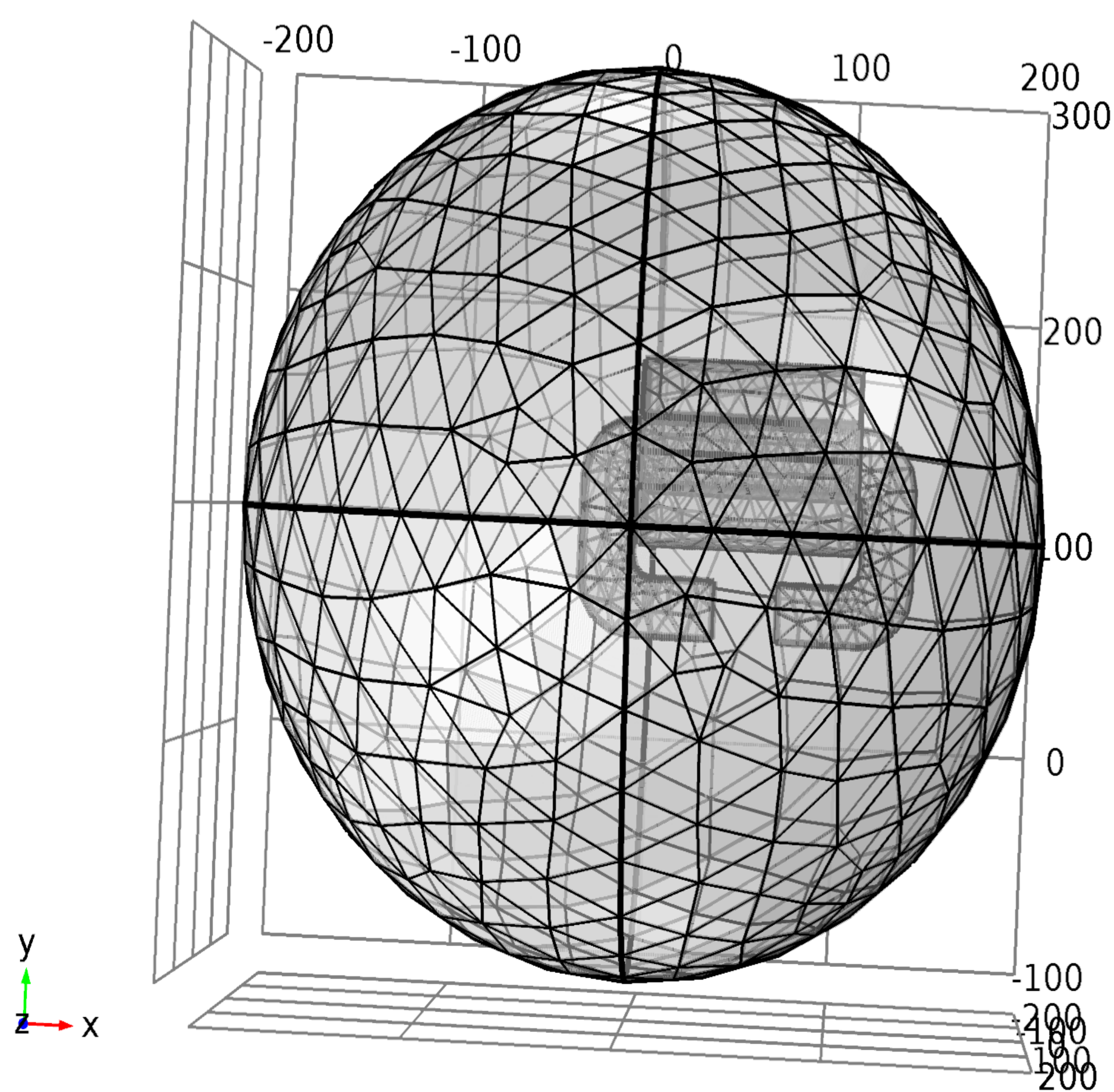


Figure 2. Mesh sequence of the model

Results:

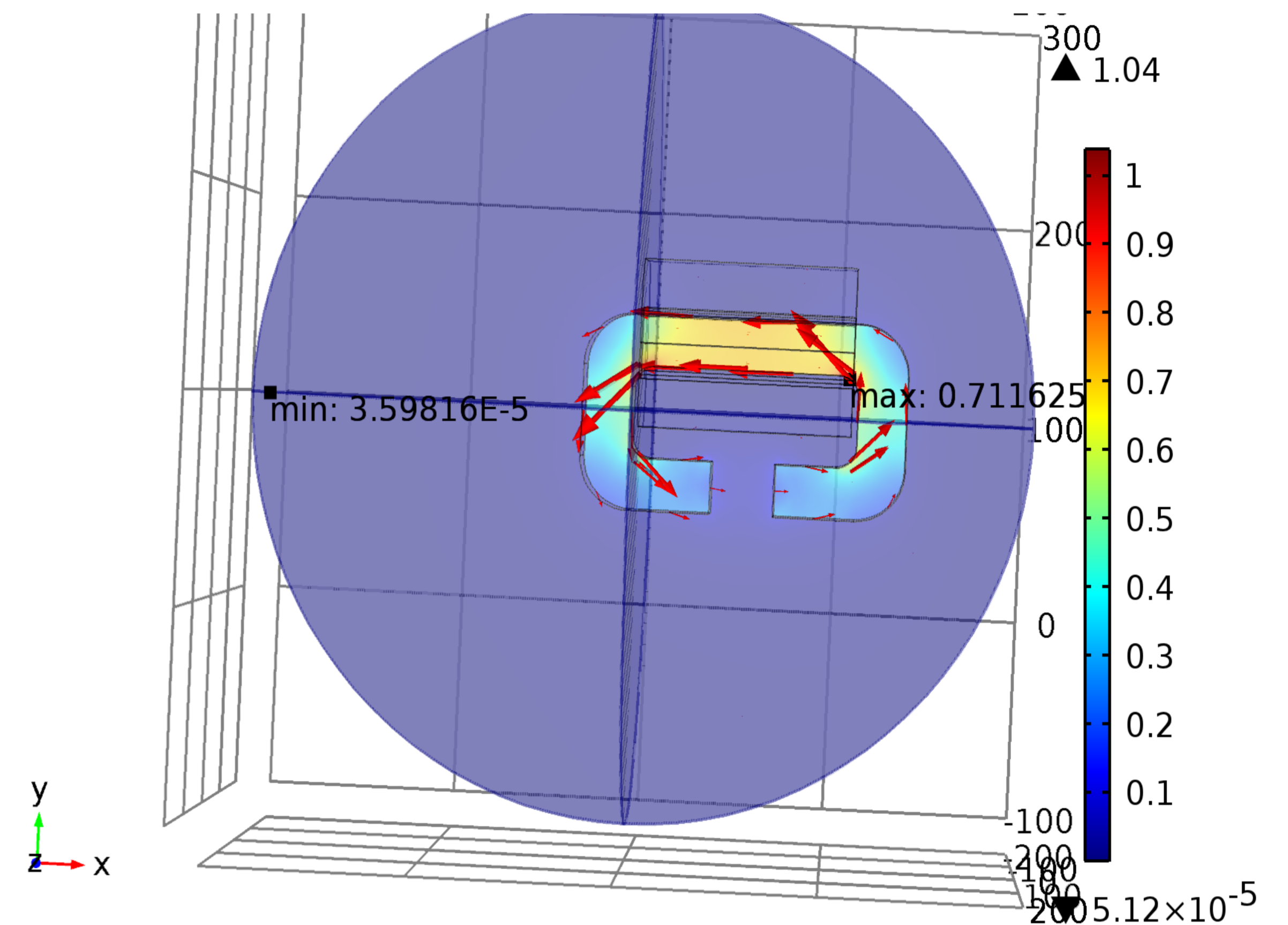
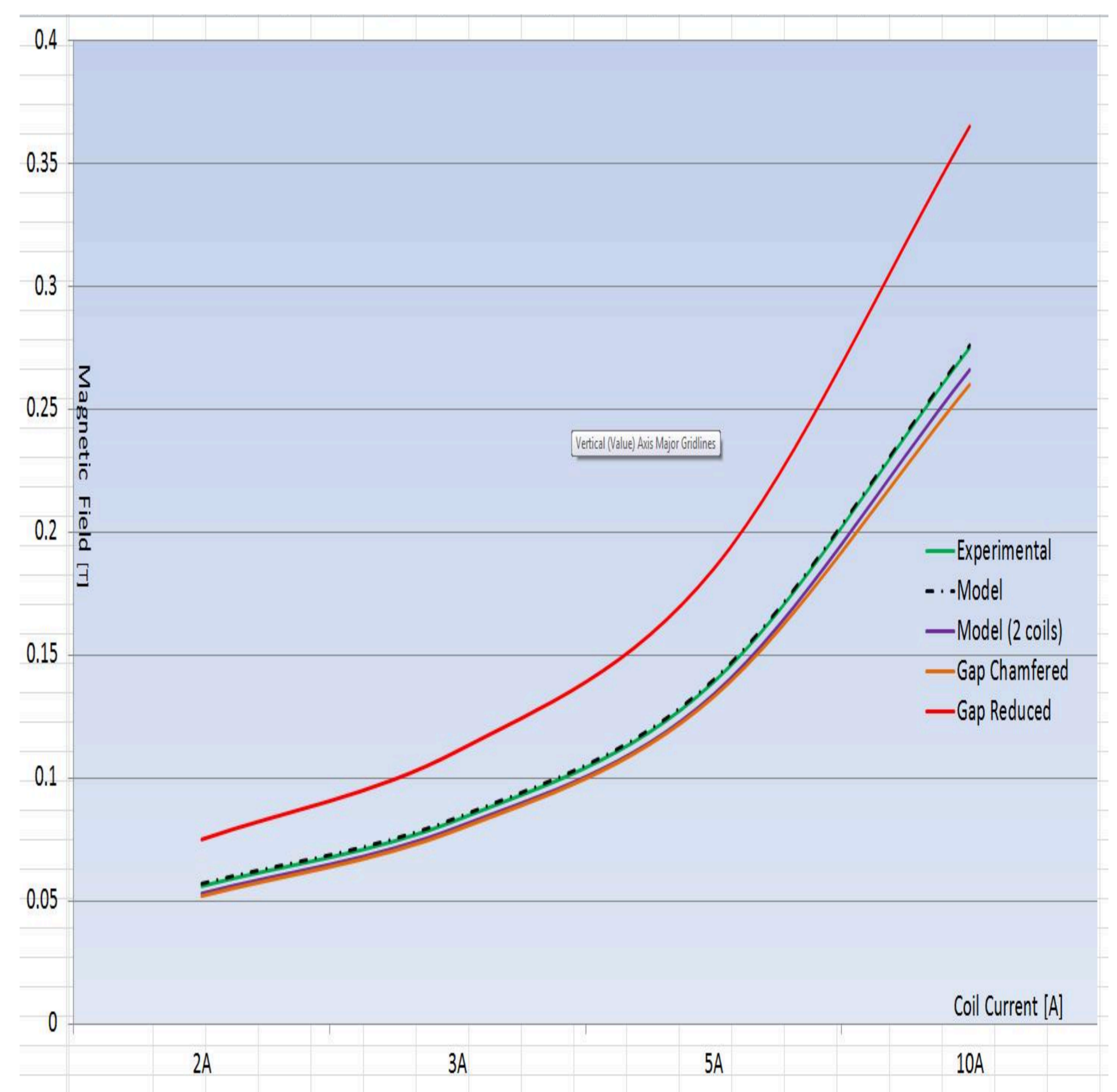


Figure 3. Simulation result of the model when 2A current applied to the coil



Graph 1. It shows magnetic flux density the models generates when different current values applied

Conclusions: The model of the real electromagnet is verified, because it showed the same behavior as the real electromagnet. Then newer models were designed to have more powerful electromagnet design.