























classic controller based on the linear model, if phase demagnetization is considered.

Some recommendations for future work may be to compare the linear model with a non-linear model that considers the saturation phenomenon to observe the differences when the motor is subjected to saturation. It is also recommended to replace the ideal circuit with a circuit that has the characteristics of diodes and transistors to obtain a more complete model.

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#### Contribution of individual authors to the creation of a scientific article (ghostwriting policy)

Jesús D. González-San Román programmed the models, carried out the simulations and contributed to the theoretical analysis.

Jesús U. Liceaga-Castro and Irma I. Siller-Alcalá contributed to the theoretical analysis.

Eduardo Campero-Littlewood carried out the electrical motor's analysis.

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