

# Symmetry analysis of the mathematical model for the dynamic transmission of Dengue, Chikungunya and Zika

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An SEIR-SEI model is presented in [1] that produces a set of ordinary differential equations. The model describes the dynamic transmission of Dengue, Chikungunya and Zika viruses that are mosquito-borne diseases [2]. They are transmitted by the female mosquito, *Aedes aegypti*. We use Lie symmetrical analysis, more specifically virtual symmetries in obtaining solutions to these ordinary differential equations.

## References

- [1] Isea, R., 2014. Analysis of an SEIR-SEI four-strain epidemic Dengue model with primary and secondary infections. arXiv preprint arXiv:1406.4155
- [2] Isea, R. and Lonngren, K.E., 2016. A preliminary mathematical model for the dynamic transmission of Dengue, Chikungunya and Zika. arXiv preprint arXiv:1606.08233