

# Angular Momentum in Terms of Toroidal and Poloidal Stream Functions

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## 1 Prior Work Considered

In this set of notes, we consider 3D nonlinear dynamo simulations from

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[Christensen et al. \(2009\)](#)

[Guerrero et al. \(2019\)](#)

[Brun et al. \(2022\)](#)

## References

Brun, A. S., Strugarek, A., Noraz, Q., Perri, B., Varela, J., Augustson, K., Charbonneau, P., & Toomre, J. 2022, “Powering stellar magnetism: Energy transfers in cyclic dynamos of Sun-like stars”, *Astrophys. J.*, 926, 21, doi: [10.3847/1538-4357/ac469b](#)

Christensen, U. R., Holzwarth, V., & Reiners, A. 2009, “Energy flux determines magnetic field strength of planets and stars”, *Nat.*, 457, 167, doi: [10.1038/nature07626](#)

Guerrero, G., Zaire, B., Smolarkiewicz, P. K., de Gouveia Dal Pino, E. M., Kosovichev, A. G., & Mansour, N. N. 2019, “What sets the magnetic field strength and cycle period in solar-type stars?”, *Astrophys. J.*, 880, 6, doi: [10.3847/1538-4357/ab224a](#)