# PERTURBATIONS OF THE COUPLED JEFFERY-STOKES EQUATIONS — CORRIGENDUM

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While Shibi Vasudeva and the author were performing numerical experiments to verify the predictions made in Montgomery-Smith (2011), it was found that the paper contained an error. Equation (41) ((6.10) in the published version) contains a sign error, and should read

$$\tilde{\Omega} = i(\hat{\mathbf{u}}\boldsymbol{\kappa} - \boldsymbol{\kappa}\hat{\mathbf{u}})$$

Also, the author decided not to report the spectral radius of $\mathcal{L}(\boldsymbol{\kappa}_0, t)$ in Sections 10 and 11. This is because in equation (29)/(5.10), $\mathsf{C}$ could conceivably be replaced by any matrix that satisfies equation (11)/(3.2), and hence is only uniquely defined up to left multiplication by an orthogonal matrix. Hence $\mathcal{L}(\boldsymbol{\kappa}_0, t)$ is unique only up to left multiplication by the five by five orthogonal matrix that represents conjugation by an orthogonal matrix on the space of three by three trace zero matrices. This does not affect the spectral norm.

The results in Section 9 remain unchanged. The results in Sections 10 and 11 are different. Tables 1, 2 and 3 should be replaced by the tables given here. The statement in Section 10 regarding where the large growths take place should be disregarded. The conclusions in Section 12 are probably still valid, but the arguments in their favor are less compelling.

## References

Montgomery-Smith, S.J. 2011 Perturbations of the coupled Jeffery-Stokes equations. *J. of Fluid Mechanics* **681**, 622–638.

| | $\beta = 10$ | $\beta = 100$ | $\beta = 1000$ |
|---|---|---|---|
| $t$ | $n(t)$ | $n(t)$ | $n(t)$ |
| 1 | 1.2 | 1.3 | 1.2 |
| 2 | 1.7 | 2.1 | 2.1 |
| 3 | 3.3 | 4.8 | 5 |
| 4 | 6.7 | 11 | 12 |
| 5 | 12 | 22 | 24 |
| 6 | 21 | 48 | 54 |
| 7 | 25 | 43 | 49 |
| 8 | 42 | 91 | 68 |
| 9 | 51 | 170 | 200 |
| 10 | 28 | 98 | 120 |

Table 1. Maximal growth of spectral norm and spectral radius of linearized perturbations starting with isotropic data.

| | $\rho = 1$ | $\rho = 2$ | $\rho = 3$ | $\rho = 4$ |
|---|---|---|---|---|
| $t$ | $n(t)$ | $n(t)$ | $n(t)$ | $n(t)$ |
| 0.5 | 1.2 | 1.6 | 2.3 | 3 |
| 1 | 1.3 | 1.9 | 3.2 | 4.4 |
| 1.5 | 1.5 | 2.3 | 3.9 | 5.6 |
| 2 | 2.1 | 2.8 | 4.7 | 6.8 |
| 2.5 | 3.1 | 3.6 | 5.5 | 8 |
| 3 | 4.8 | 4.7 | 6.6 | 9.4 |
| 3.5 | 7.2 | 6.2 | 8.1 | 9.8 |
| 4 | 11 | 8.3 | 9.3 | 11 |
| 4.5 | 16 | 9.8 | 12 | 14 |
| 5 | 22 | 12 | 14 | 17 |

Table 2. Growth of spectral properties with initial data created by squeezing.

| $t$ | $n(t)$ |
|---|---|
| 0.5 | 3.2 |
| 1 | 4.8 |
| 1.5 | 6.1 |
| 2 | 7.8 |
| 2.5 | 10 |
| 3 | 13 |
| 3.5 | 15 |
| 4 | 18 |
| 4.5 | 20 |
| 5 | 22 |

Table 3. Growth of spectral properties with initial data created by a reverse shear.

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