1116-VP-568             Fan Ny Shum* (fan.shum@uconn.edu). Stability of a $\mathbb{C}^2$-valued Coupled System.

This is a report on the results of the NSF-supported REU program at the University of Connecticut, Summer 2015. Namely, we present numerical results on the complex-valued ODE

$$\begin{cases}
\dot{z}_t = -\nu z_t + \alpha z_t w_t \\
\dot{w}_t = -\nu w_t + \beta z_t w_t \\
z_0, w_0 \in \mathbb{C},
\end{cases}$$

where $\nu \in \mathbb{R}^+, \alpha, \beta \in \mathbb{R}$.

We show this ODE has solutions that blow up in finite time and can be stabilized by the addition of a Brownian term. Furthermore, we numerically computed the steady-state distribution of the system with an additive Brownian term. This is a higher-dimensional example of the system studied by David Herzog and Jonathan Mattingly. They showed an explosive system of ODEs in the form of a complex-valued polynomial is stabilized by an isotropic Brownian term. (Received September 07, 2015)