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## **MATLAB CODE FOR:**

# **Tractable latent state filtering for non-linear DSGE models using a second-order approximation**

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**Other researchers may use (and further develop) this code, provided proper credit is given.**

Copy all attached files to the directory used for running MATLAB procs.

## **1) Procs used for RBC model**

RBCmodKQ\_web.m: the main proc that solves the RBC model, generates simulated time series, and applies the three filters discussed in the paper: KalmanQ, PF(p) [particle filter with 'p' particles], KalmanL.

RBCmodf.m: the RBC model equations.

The model is solved using Chris Sims' proc gensys2.m.

gensys2\_TO\_KALMANQ: this proc takes the output of gensys2, and produces the matrices F0,F1,F2,F11,F12 and F22 of the second-order accurate model, in the format of the solution used in the paper (see equation (4)).

gensys2\_moments.m: this proc computes first and second moments of the state vector.

gensys2\_HPmoments.m: computes first and second moments of the HP filtered state vector.

arsimqL\_STACK.m: this proc simulates the second-order accurate model.

These procs generates filtered estimates using the KalmanQ filter, the KalmanL filter, and the particle filter: KALMANQ\_FILTER.m, KALMANL\_FILTER.m, PARTICLE\_FILTER.m

## **2) Proc used for model with randomly drawn coefficients:**

GENmodKQ.m