

METHOD AND PROGRAM FOR DETECTING CHANGE-POINT OF TIME-SERIES DATA,
AND METHOD AND PROGRAM FOR PREDICTING PROBABILITY DENSITY
DISTRIBUTION OF FUTURE TIME-SERIES DATA VALUES

5

ABSTRACT

The present invention applies a particle filter method to the PUCK model for calculating a true market price $P(t+1)$ at the time (t) determined by the true market price $P(t)$ and a core price $PM(t)$. First, a probability density function of a parameter is obtained by generating
10 a group of particles having parameters representing the state of the PUCK model each having different values. Then, the degree of conformity of each of the particles is evaluated and the particles are resampled as follows in accordance with the degree of conformity. A random number is generated and the random number is compared with a predetermined value, where particles are regenerated in accordance with probability density function such as a normal
15 distribution for making a parameter value of the model at time (t) into a mean value when the random number is greater than the predetermined value, and where the particles are regenerated taking a uniform distribution as the probability density function when the random number is less than the predetermined value. This series of operations is continuous.

20 Figure 1