S7. The scheme of finite differential methods:

1. *The FTCS scheme*

For the general form of equations (Eq.1), it has four typical terms: the time derivation at left-hand sides, and diffusion, reaction, and production term at the right-hand sides. Hence, we considered the following form:
where , and are diffusion coefficient, reaction rate and production rate, respectively.

We divided a 2-D temporal-spatial region, , into elements and wrote . We used forward time difference and central space difference and obtained the scheme:

1. *Discretization of equation*

We rewrote Eq.1 as:

 (S7-1)

where representing in Eq.1, respectively.

We used FTCS method to discretize Eq.(S7-1):

Rearranging it, we obtained: