One very important question when selecting species of kinetic interest is how to choose active species. For example, to reaction,

From previous study, is relatively stable at stage-1A, which basically means will not react with any other species therefore can be viewed as a terminal species. But this doesn’t mean the branch flow into this reaction terminates since H atom is active and has the potential to ignite new chemistry. A possible pathway can be,

Two question can be raised here,

1. How to choose active species? We probably can use lifetime or survival probability as criteria to determine the “active” and “inactive” boundary. Quietly easily lifetime and survival probability can be used in a time-dependent manner.
2. How to calculate the branching ratio? To the above transition, , the branching ratio is 1.0. But how about the following reaction, . One active species yields two active species and . In this case a factor of 2 should be multiplied.