When the cavity locates in the middle region, the time interval between two consecutive PDs is reduced. As expected, the trend is almost symmetrical. However, the time interval is of little difference for different cavity condition. It means that cavity location has little influence on the PD under DC condition. The amplitude of the applied voltage increases, the trend of PD distribution will be more uniform, with a constant time interval. PD in circle area happens in a discharge process.

In the work PD under DC condition has been simulated using the existing model. The time interval between two consecutive PDs and its relationship with the applied voltage, cavity size and the cavity location have been obtained.

For future work, the model refining is essential. The present model is quite simple and some potential factors are not considered, such as charge barrier and influence of space charge. Space charge is important under DC condition and its presence will no doubt affect PD behaviours. Polarity reversal is a possible operation mode in HVDC system. Its impact on PD needs to be studied. A possible operation mode in HVDC system. Its impact on PD needs to be studied.