Task 5: Barriers Influence to the Electrical Strength in a Non-Uniform Electric Field

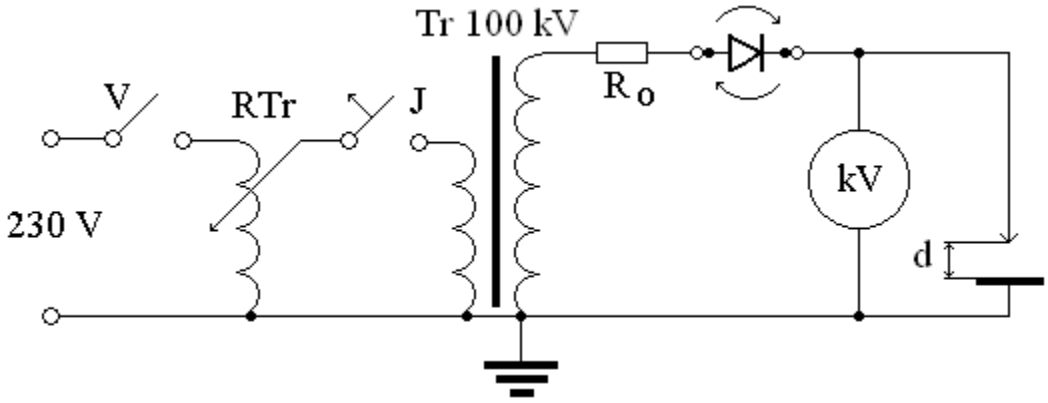
(Laboratory F1-115)

a) Determine the flashover voltage U_P as the dependency of gap distance d for both dc voltage polarities. The gap distance should be stepwise increased up to 100 mm with the step of about 20 mm.

b) Determine the optimal location of barrier (the distance of the barrier from the plane is marked as a) for the distance between electrodes d = 50 mm. The positive voltage polarity is applied to the rod.

In conclusion, explain the polarity effect process in non-uniform electric field.

Measurement circuit:



V	- switch	Ro	- limiting resistor
RTr	- controlled power transformer	kV	- electrostatic kilo-voltmeter
J	- breaker	d	- controllable gap distance
Tr	- testing transformer 100 kV		

Graphical Evaluation of Results:

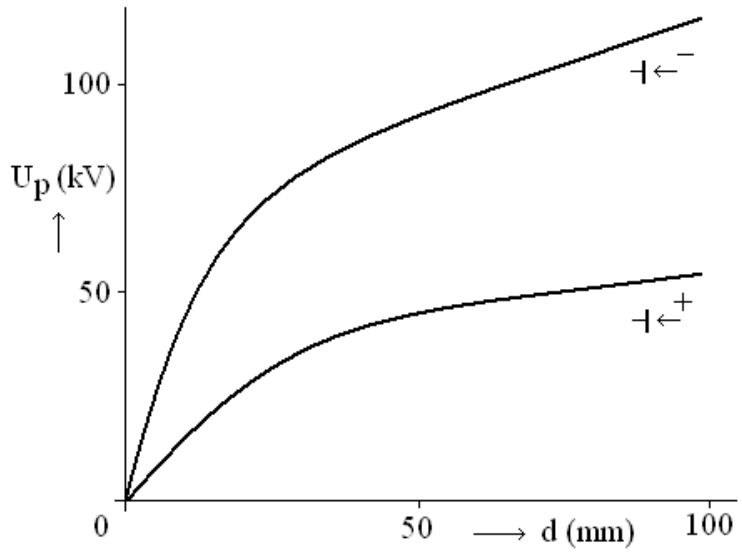


Fig. 1: Dependency of the flashover voltage on gap distance

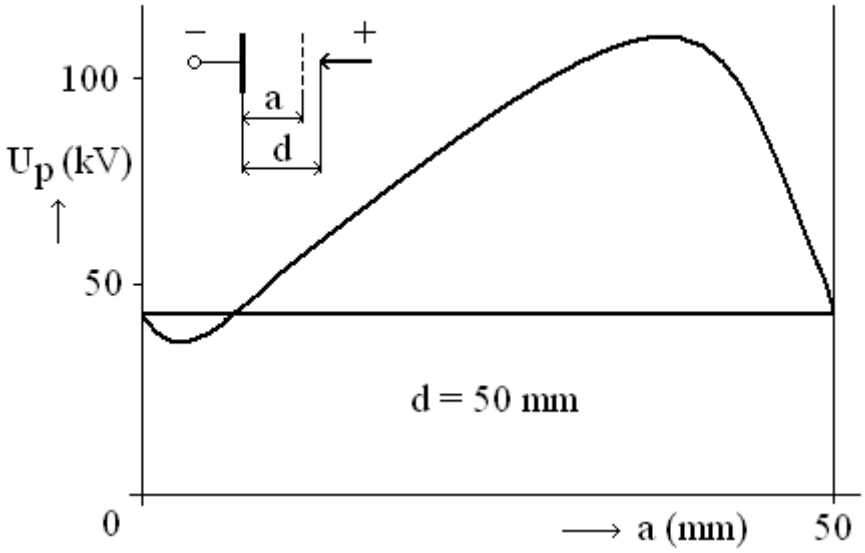


Fig. 2: Dependency of the flashover voltage on the location of barrier in non-uniform electric field