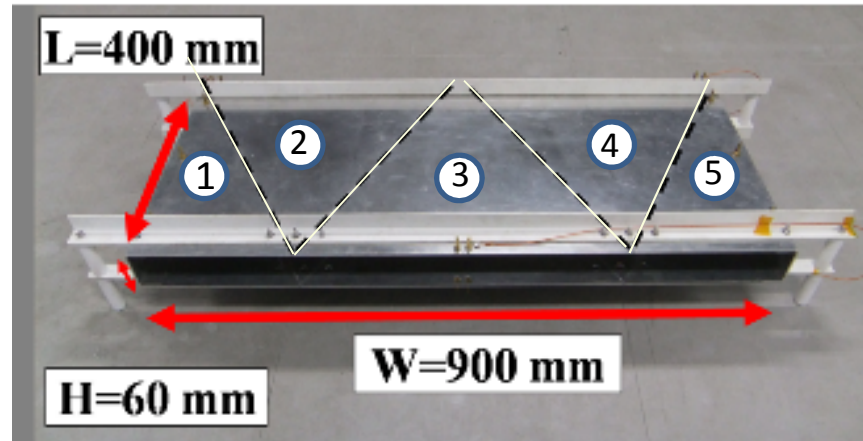


# Development of Large Aperture Non-Destructive Beam Position Monitor for 150 MeV FFAG (2)

Shogo Kuratomi

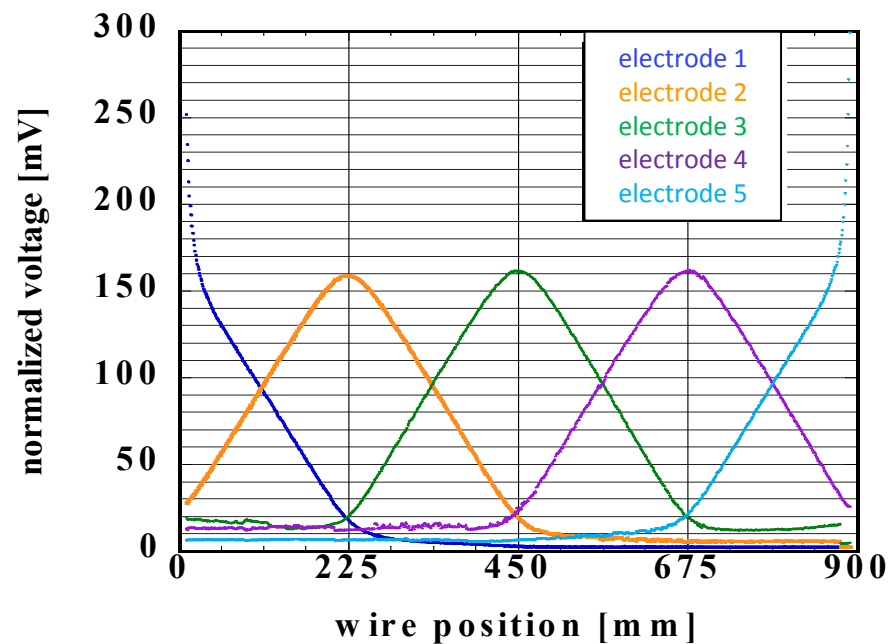
4th grade at Kyushu University

## Introduction



The beam position monitor for FFAG developed in Kyushu University.

- the result of performance test



I am studying this result by electric field analysis.

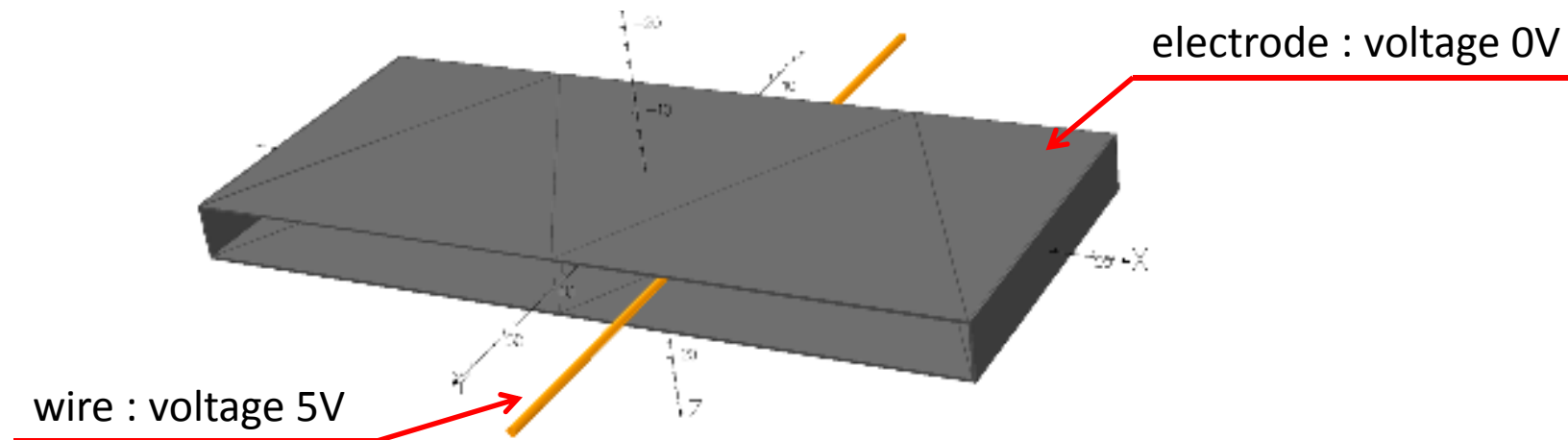
## Analysis of electric field

I am trying to reproduce the result of the experiment by the analysis software.

- Analysis type... Electrostatic analysis

Actually, a field around the monitor is **not** an electrostatic field because beam is circulating. But an electrostatic analysis is enough because pick-up voltage of electrodes is thought to be proportional to electric field strength on the electrode surface.

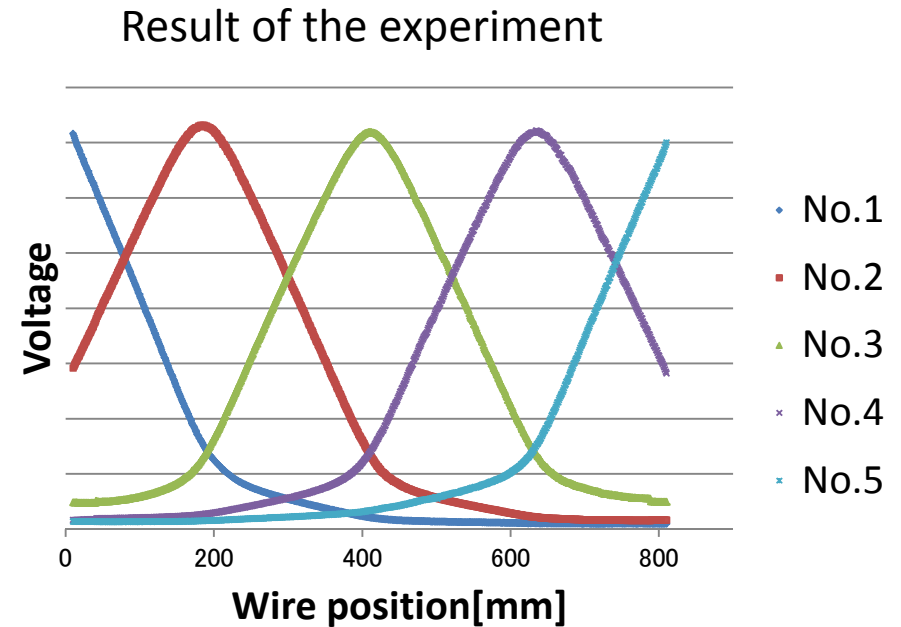
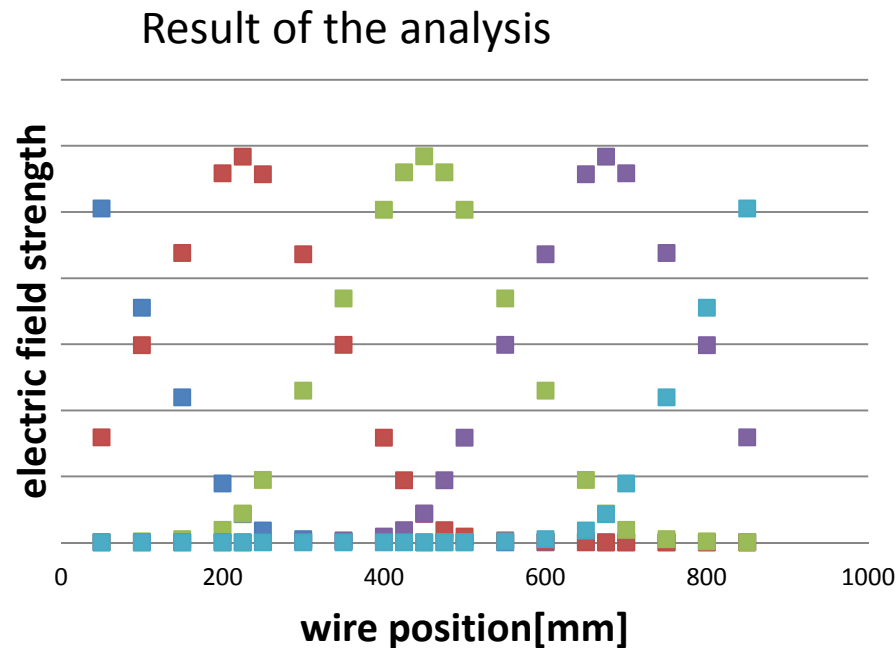
- Analysis software...TOSCA(Opera-3d).



Model and Condition of this analysis

## Result of analysis

### ▪ Positional response characteristic

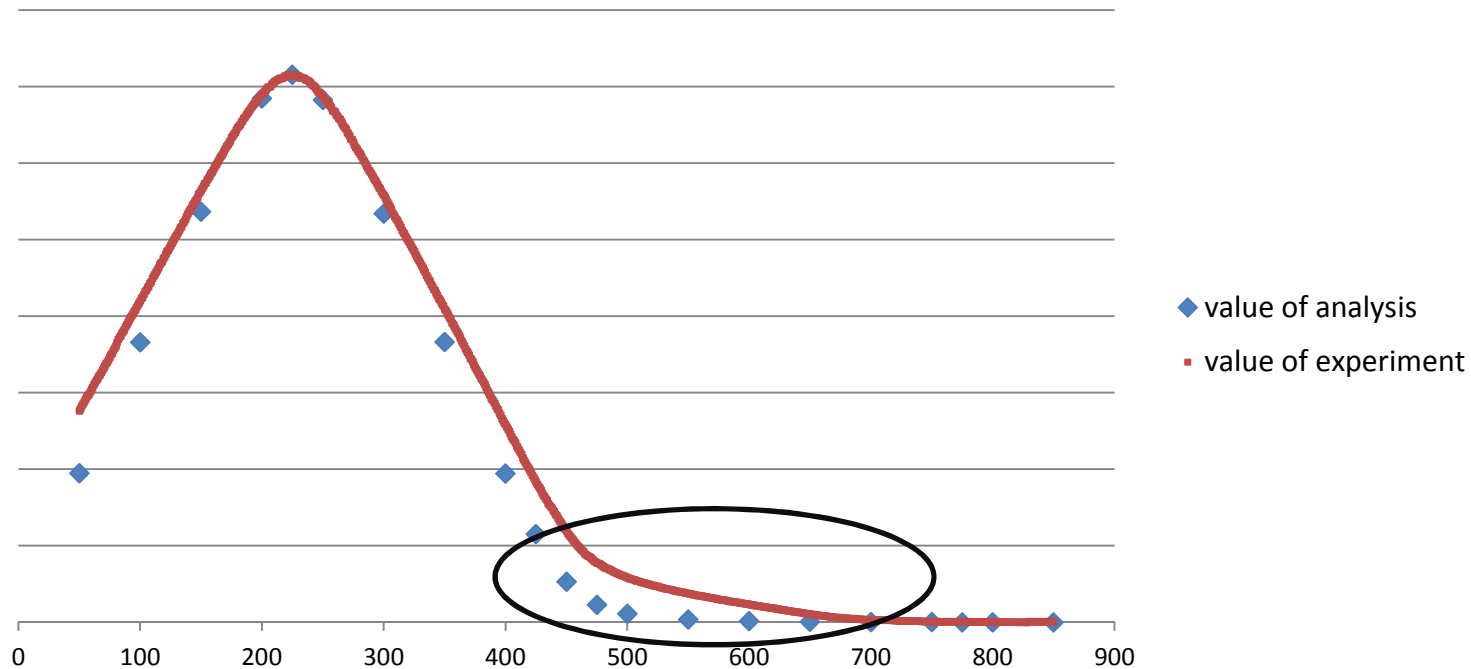


In the left graph, y-axis shows the sum of electric field strength on electrodes.

This calculation reproduced the tendency of the experiment.

## Result of analysis

• About the electrode No.2



In this graph, to compare two values, the peak of analysis value conformed to the peak of experiment value.

The analysis couldn't reproduce the experiment especially the area enclosed with this circle. Results of all electrodes were similar to this result.

## In future

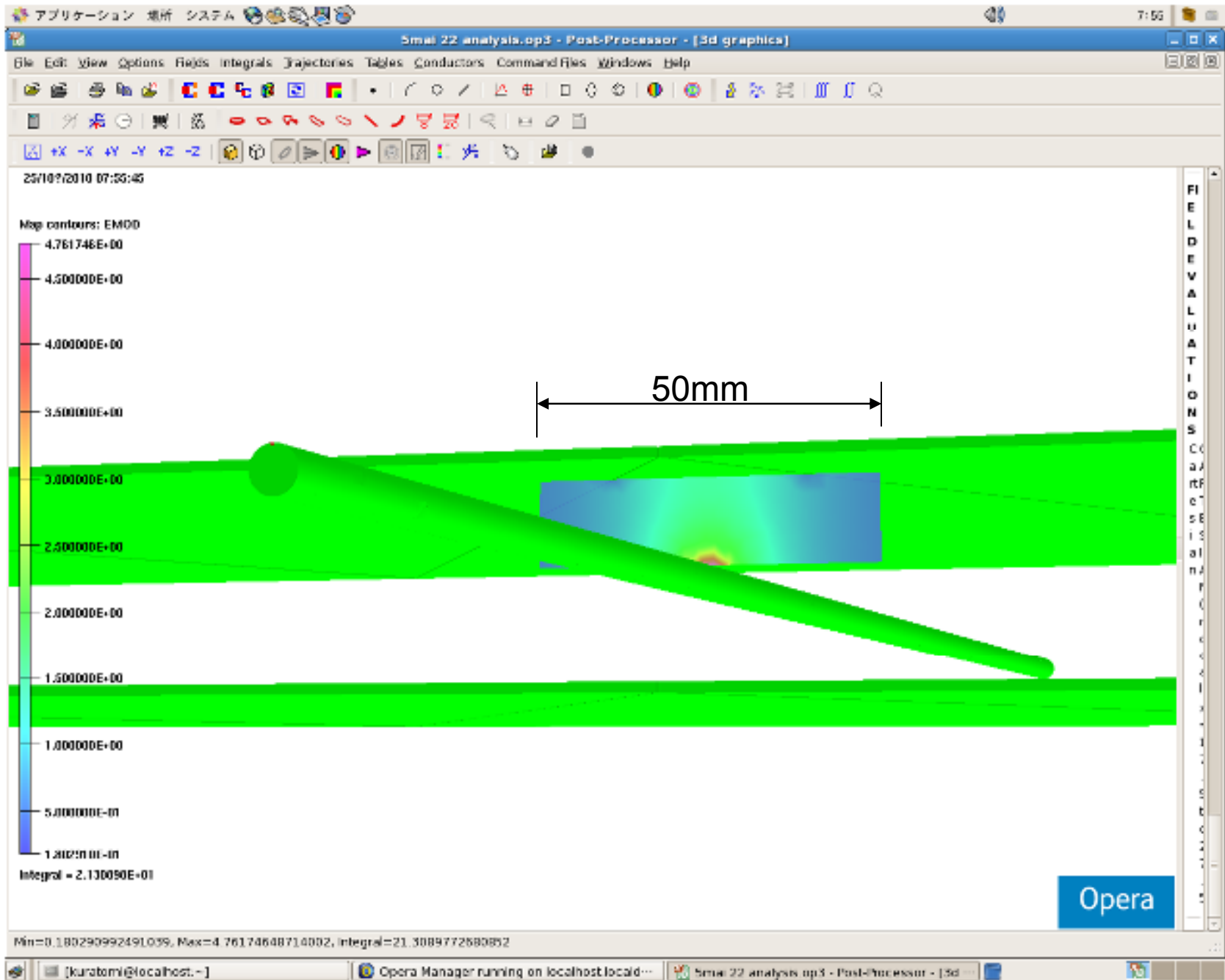
To more accurate reproduction, it is necessary to more precise analysis and calculation.

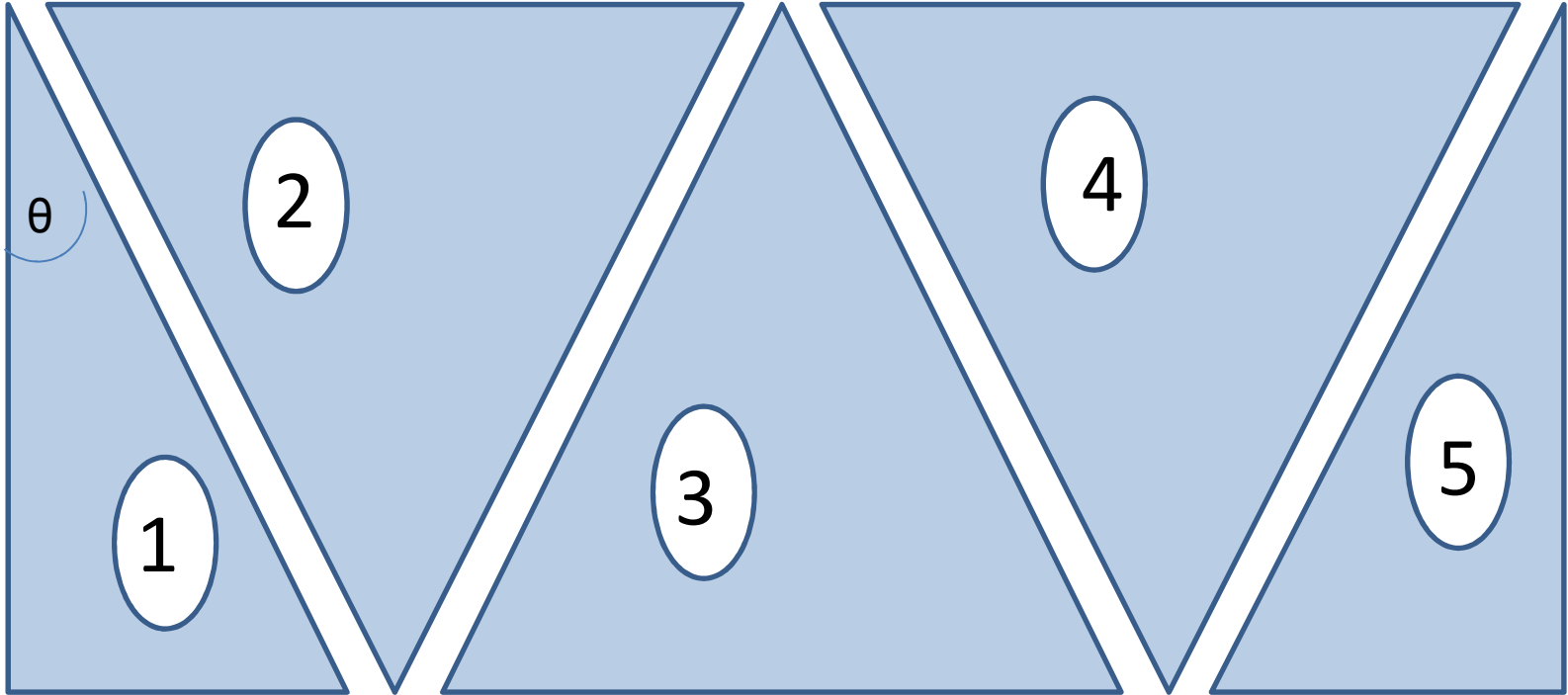
For examples...

- to more minimize the model mesh in analysis.
- to consider aspect and edge of the electrode. (now, I considered only top and under surfaces of electrodes.)

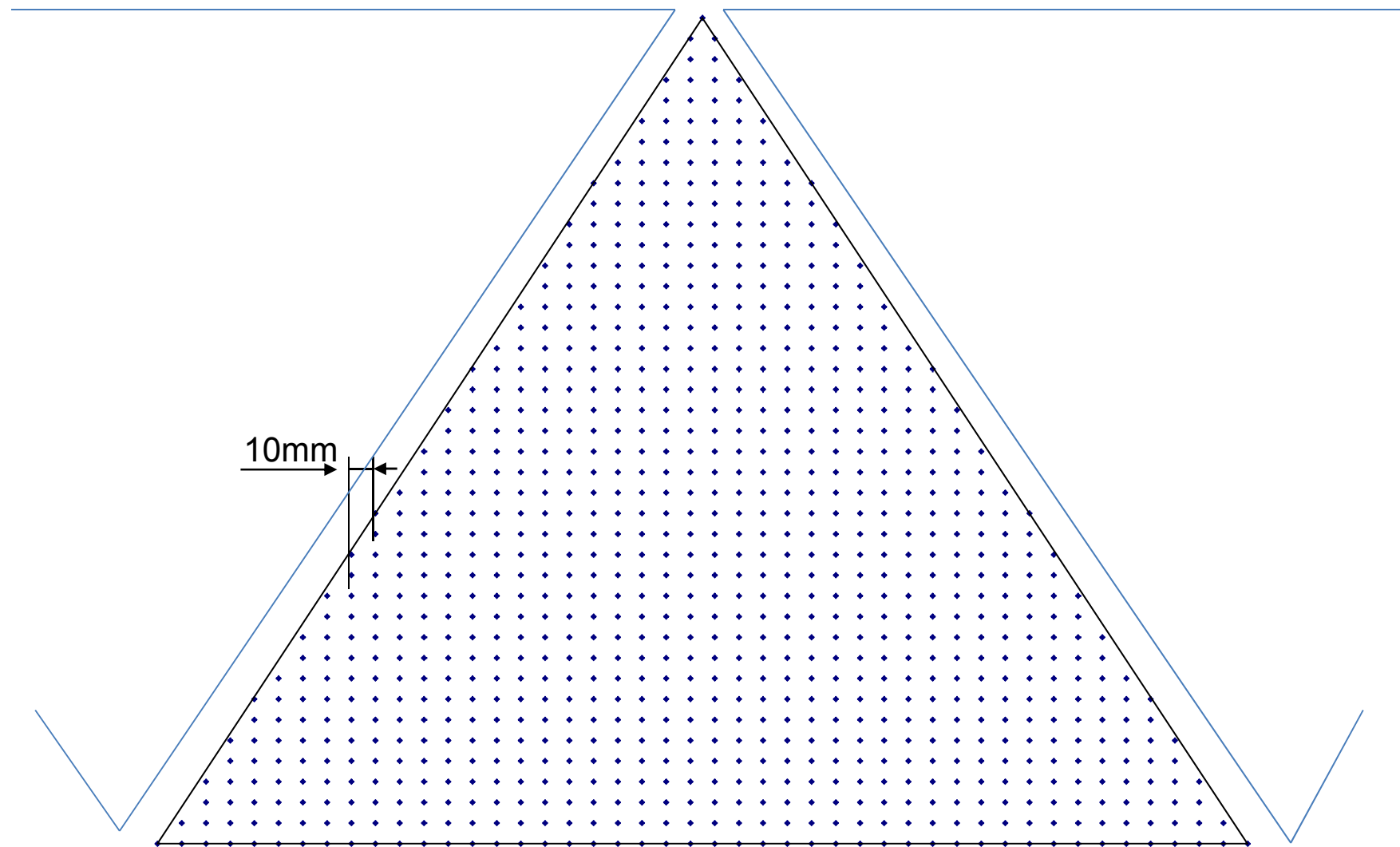


Thank you for your attention.

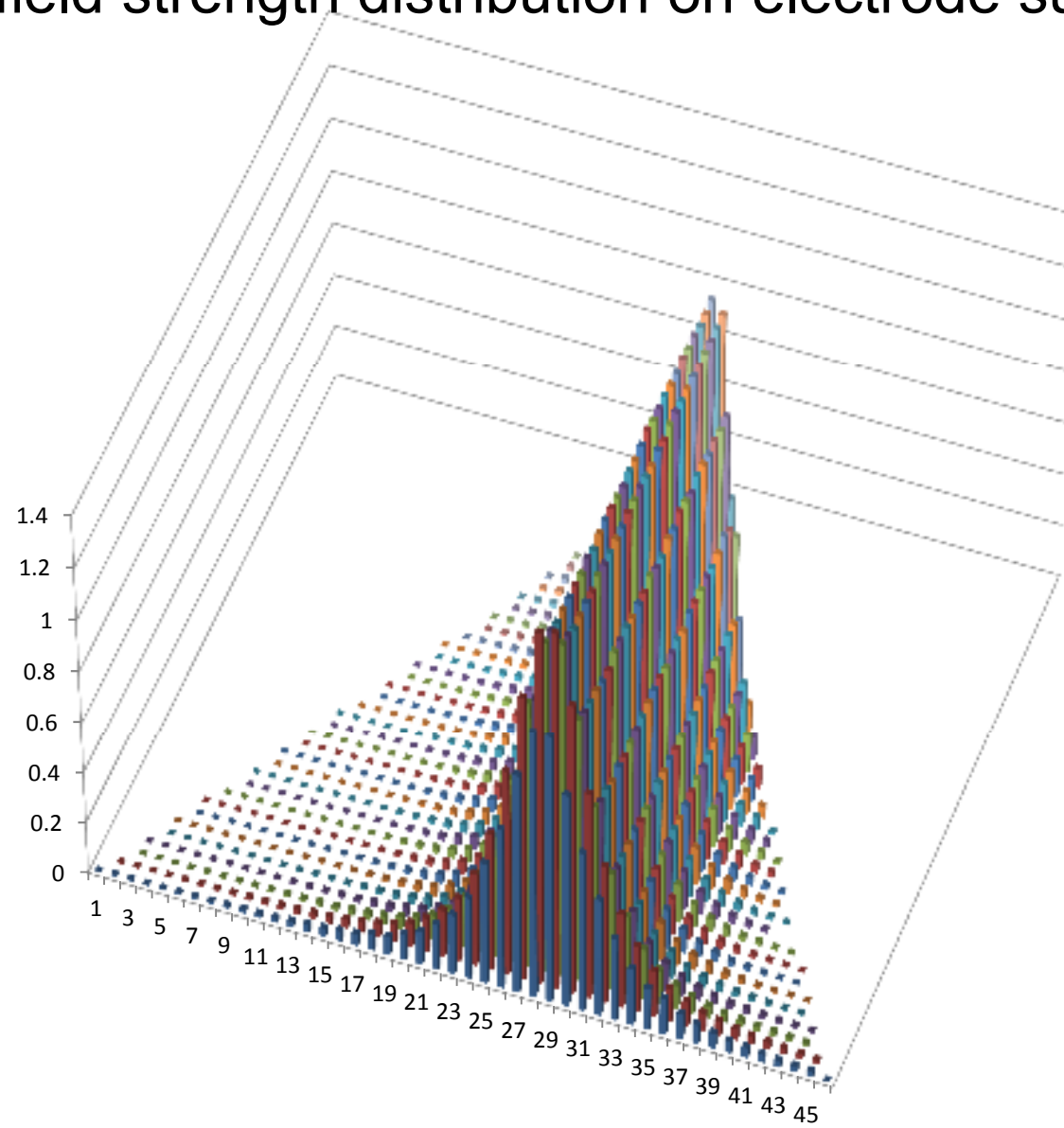




point to calculate of electric field strength (electrode No.3)



# The electric field strength distribution on electrode surface (No.3)



By suppress the leakage of electric field...

