

Denoising of UHF Signals based on RBPF and the **Localization** of PD Sources using FDTD Method in Power Transformer

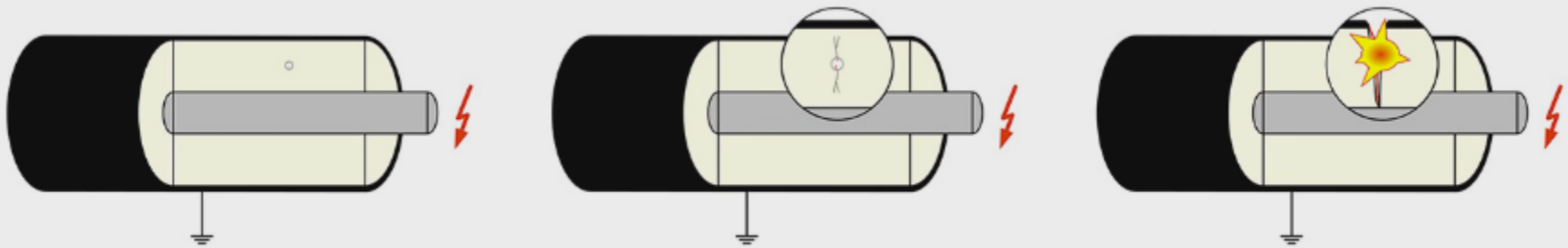
Denoising of UHF Signals based on RBPF and the **Localization** of PD Sources using FDTD Method in Power Transformer



Still no idea?

Well, I can help you with that...


Do you know what is **Partial Discharge?**



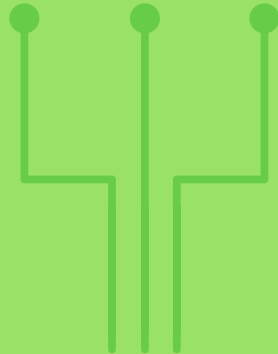
It's **within** solid insulation system and therefore **not visible!**

Self accelerating process (*it just goes worse*).

Discharge \Rightarrow **material deterioration** \Rightarrow more intense discharge... :-)



**But, how to find it in the
internal structure of the
Power Transformer?**



Time-difference look-up table method FTW*!

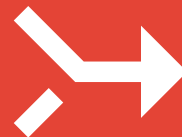
* For The Win

#1

FDTD simulation

UHF signals

#2



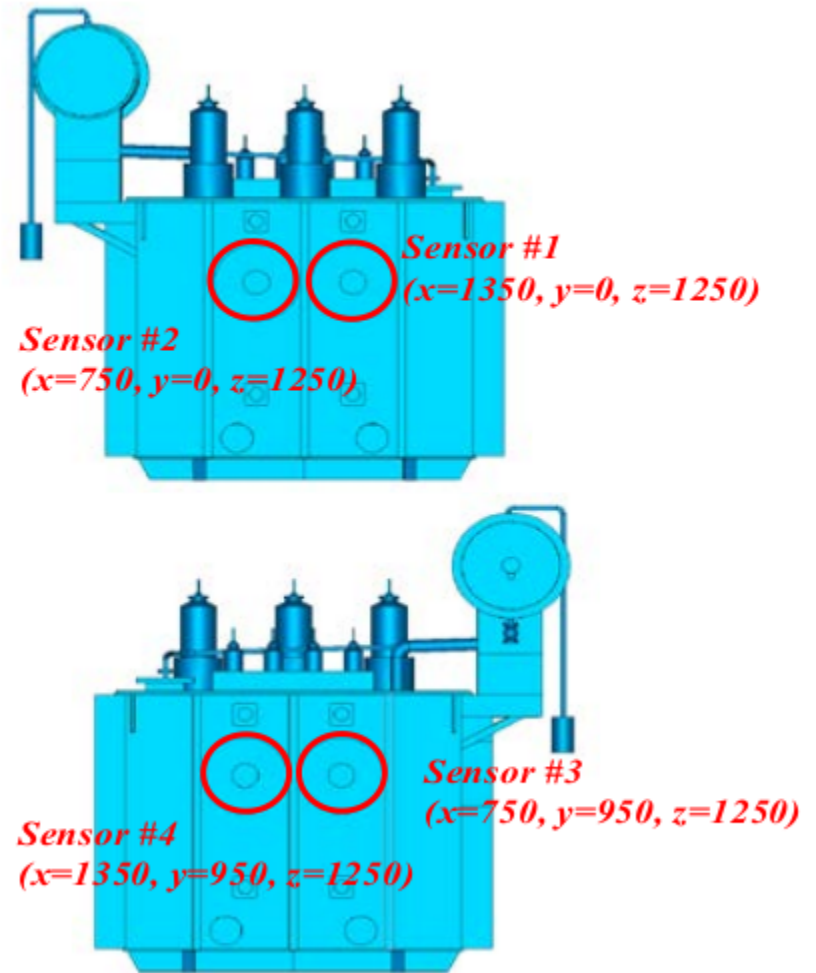
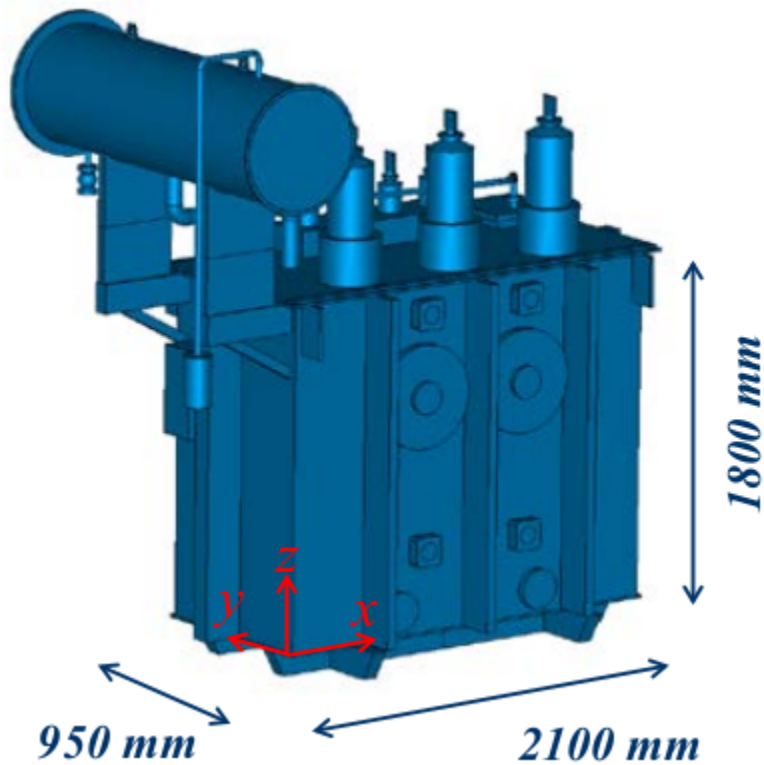
#3

PD position

STEP #1



Modeling & Simulation



The result is **time-difference look-up table**

STEP #2



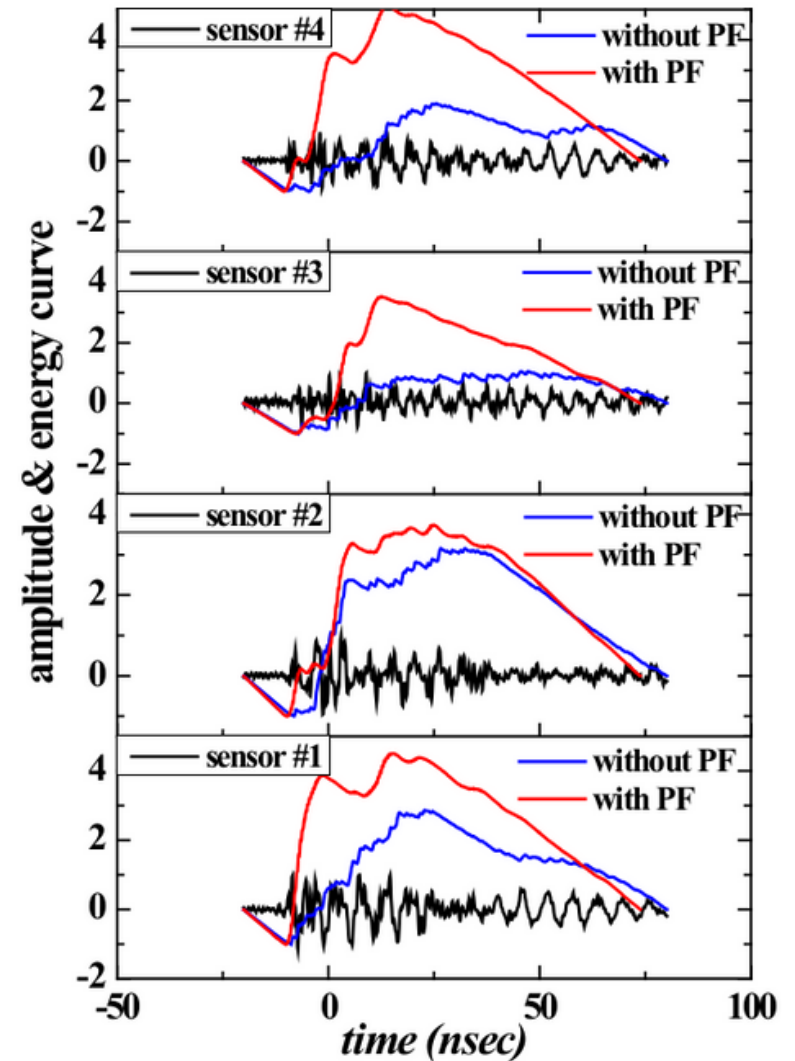
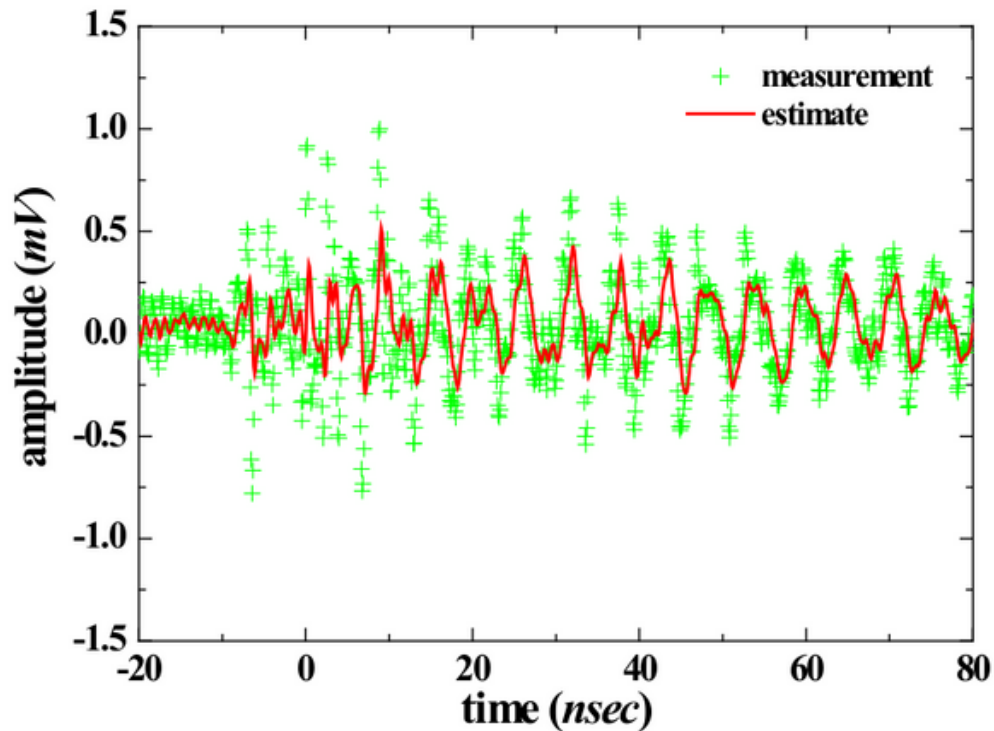
Experiments

Problem?

Extraction of arrival time

Solution?

Denoising - particle filter



Ok, let's **RECAP**

Step #1

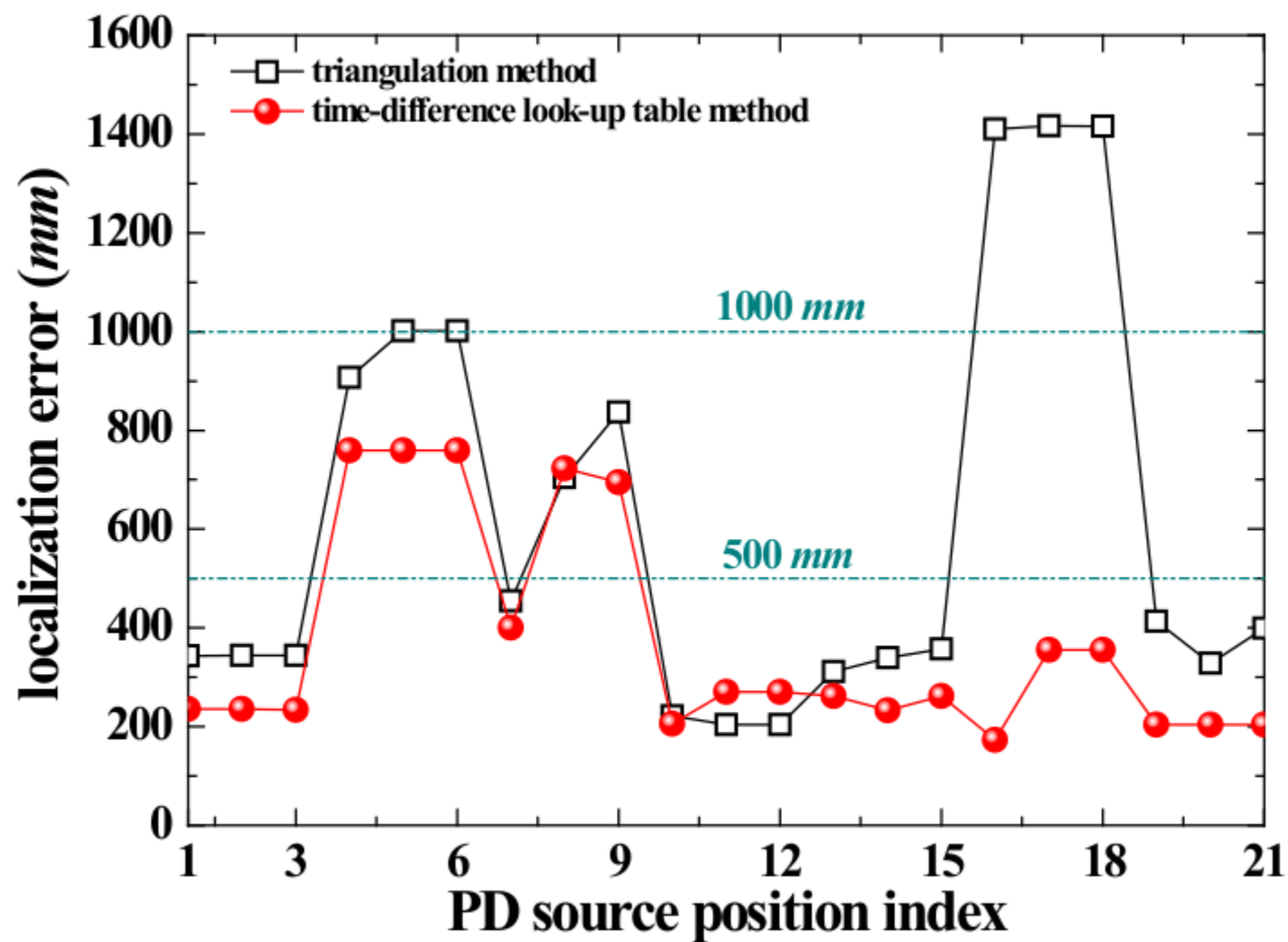
We already have **look-up table**

Step #2

We already have **measurement data**

⋮

Final step? **Compare** all the things!



CONCLUSION

You need simulation and measurement

Sensors location may be crucial

But, it's fast (just comparison)

And relatively accurate (371 mm vs. 617 mm - 40 %)

Thank you for listening

I WILL NOW ANSWER ANY QUESTIONS YOU MAY HAVE

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