

IEEE Oscillation Source Location TF

Meeting Minutes: Annual Meeting

Location: Online Virtual Meeting
Time: 11:00am – 12:15 pm (EDT), Tue, 06/29/2021

Attendees:

- Qiang (Frankie) Zhang
- Udaya Annakkage
- Kai Sun
- Ning Zhou
- Lei Chen
- Aftab Alam
- Cosimo Pisani
- Dinemayer Silva
- Dan Trudnowski
- Evangelos Farantatos
- Federico Milano
- Luke Dosiek
- Siqi Bu
- Slava Maslennikov
- Sukumar Kamalasan
- Tony Weekes
- Yilu Liu
- Yinhua Guo
- Hassan Ghoudjehbklou
- Mani Venkatasubramanian
- Mahendra Patel
- Others who joined later

Action items:

- (1) If you are interested in reviewing or making final touch-ups to the report, please send Kai (kaisun@utk.edu) an email and Kai will send the TF report to you for review and comments. Please send your feedback on the TF report to Kai Sun (before 08/15/2021).
 - a. Needs contributions to Ch05: Conclusions (Kai will contact individual authors)
 - b. Needs contributions to Ch06: Recommendations (Please contact Kai)
 - c. Suggestions and comments are welcome
- (2) Udaya will send Frankie the scope of the CIGRE working group to share with the TF (attached).

TF Activity Updates:

Frankie hosted the meeting. This meeting is the last meeting of the TF.

- (1) TF Report on forced oscillations: (Kai Sun)
 - a. Scope: Identification of forced oscillations;
 - b. Overview on the structure of the report;

- c. Mahendra comments: It will be helpful to clarify the sources of oscillations and point out the particular control systems (e.g. IBR) that cause the oscillations.
 - d. Slava: IBRs may also introduce very low frequency oscillations, 1-2 minutes a period.
 - e. Yilu: Sent Kai an email about oscillation sources
 - f. Slava: Are the distinguishing methods practical/theoretical?
Kai: some contributors use the field measurement data. We focus on theoretical studies.
 - g. Dan: What's the deadline for feedback?
 - i. Udaya: suggest set Aug 15th, 2021 as the deadline.
 - ii. Kai can send the report to members (upon request)
- (2) IEEE NASPI OSL Contest: (Frankie)
- a. Website of the contest;
 - b. Committee members (weekly meetings until mid-July);
 - c. 6/11/2021 deadline of the solution submission;
 - d. 21 out of 41 teams submitted the solutions and being graded
 - e. Target an award ceremony during the PSDP committee meeting
 - f. Winner presentations during fall NASPI meeting
 - g. Yilu: Who did the simulation? You can tell that the cases were very thoughtful.
 - i. Frankie: It's a team effort! Slava and Bin did most of the design and simulation work. Jeff from Powertech helped develop some of the new simulation capabilities in the process.
 - ii. Slava: The goal was to try to create more realistic cases. Also, some cases may be very challenging. Scope is broad and balanced so that it can be fair to the participants.

Member updates:

- Udaya: CIGRE C4 started a new working group on PMU applications. Udaya will send Frankie the scope of the working group to share with the TF.
- Cosimo: C2ONE by the end of 2020, using wide area monitoring systems in control rooms. Working on application brochure.
- Mani: We have a working group DMWG under the IEEE PSDP and can use some synergy with CIGRE working group.
- Lei: Oscillations from power electronics have attracted a lot attention lately in China. Although electro-mechanical oscillations had been the focus of this TF.
- Slava: high frequency oscillations are relatively easy to locate, right?
- Mani: Inverter based resources (IBRs) incur oscillations. The oscillations are hard to deal with because of the large number of IBRs devices.
- Mahendra: Are there definitions to separate oscillations incurred by IBRs, harmonics and resonances? Not so far (Mani)
- Udaya: A paper has been prepared on oscillations incurred by IBRs. Some definitions on sub-synchronous oscillations (SSOs) are discussed;
- Kai: The new PSDP stability definition provides a classification;
- Slava: One major value of studying and identifying the sources of IBR oscillations is to mitigate them. Kai: it is hard to identify single sources. The levels of participations can be used to quantify the contributions from different sources.
- Cosimo: Measurement devices for identifying high-frequency oscillations are needed; Offshore wind farms may incur low-frequency oscillations, which could resonant with electrical mechanical modes.

- Hassan (SDG&E): A report suggested that the IBR renewable penetration (of ~95%) may cause system-wide oscillations on Hawaii islands.
- Mahendra: The next-step efforts of the TF can be to collect the oscillation information for different categories.

Post TF plans:

A new working group is proposed under PSSC: Oscillation Assessment, Control and Mitigation

- Slava: we shall focus on mitigation. Find the oscillation sources.
- Mahendra: it may be hard to pinpoint one source. Sometimes, resonances can blur the lines.
- Kai: Kai and Jim put together and submitted the proposal to PSSC.
- Federico: Will the WG organize a panel for 2022 GM? Kai: Yes. Federico: We will discuss panel proposals in the upcoming subcommittee meeting. Kai: will draft a proposal and send along before the meeting.