

# Wrap up discussion

## 1 - ITM Infrastructure/datastructure related

- **ITM does not have a 3D wall nor 3D equilibrium.**
  - But can ERC3D accept for the moment to building their own 3D plasma state structure internally from ITM data ? **Y, CPO like.**
  - Ripple is precluded. IMP12 will make an effort to promote once more 3D eq. codes for 2011, now with a “waiting customer”.
- **How to flag validated simulated data on the database ?**
  - The output\_flag in codeparam element, lying there for that purpose ! It will end up in the output CPO from ERC3D code. The latter should be as close as possible to the diagnostic data CPO to be adopted by “reflectometers”.
- **C interface** : ERC3D is made in plain C, not C++. ISIP should provide for such an interface.
  - **But first try it out on C++ compilers...**

## 2 – Code Adaptation/Integration

- **Antenna CPO**
  - The ITM has already EC, IC and LH antennas.
  - ERCC has still some internal discussion to do to ultimate how to cast the generic structure of such antenna.
    - Is it possible/feasible to cast a generic antenna type to be used for all reflectometer diagnostics ? (Correlation, Doppler)
    - How to allow for different shapes during operation ?
    - Which quantities to be stored in MD (constrained to be time independent).
  - ERCC should develop a “as simple as possible” example building on existing ones that suits their minimal requirements.
    - Further details might be hardcoded in the code itself in the early stages.
- **Output CPO**
  - Still to be defined. Suggestion is that it is as close as possible connected to the actual experimental data, after homodyne/heterodyne detection.
  - Q : Can ever get a single output CPO since it is application dependent : fixed frequency, sweeping, radial correlation, Doppler.
    - **From the point of view of the detection it is clearer -> Amplitude + Phase.**
    - From the point of view of the processed experimental data not really since the physics output may differ -> **Not to be dealt by the output CPO.**
    - **We can, however, get both the raw experimental data CPO and the final physics profiles directly from experimentalists.**
    - We may feed the Amplitudes + Phases for post-processing with existing tools (Toolbox under discussion for development).
- **Code Parameters**
  - ERCC use multiple “Namelist” files -> These can be cast under multiple layers of our XML schema so no real issue...
  - C Parser exists so no worry here (ERCC to make the schema, assisted by IMP12 contributors)
- **Time stepping**
  - Typically ERC3D runs on top of time snapshot of eq.+fluctuations.
  - Is time dependent plasma state, at similar time scales as ERC3D wave propagation, necessary ? **Not really...not important...but dealing with time dependent**

**plasma state might arise in the future...**

- **From turbulence mesh to the Cartesian mesh to be used in ERC3D.**
  - As for core to edge coupling, we may make use of the grid meshing tool (flux to R,Z) in use (D.Coster). Minor glitches to clarify (e.g. interpolation performance) and to validate.
  
- **Core+edge/SOL (edge CPO) density profile is needed.**
  - The ITM is not yet fully ready on the edge CPO part...
  - Is a simple interpolation/guess outside separatrix sufficient ?!