

1. Main research topics (repeat for every major topic)

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| Title | Validation and improvement of the JET real-time wall load protection software (WALLS2011) |
| Short description (max. 200 words) | After the WALLS2011 basic functionality commissioning during the JET restarts in 2011, continue to improve the software by adding more advanced features required by the JET operation and developing analysis tools. |
| Specific targets | JET WALLS2011 |
| Milestones | <ul style="list-style-type: none"> • Validate the implemented models with online data and whenever possible compare with other diagnostics (eg thermocouples and IR cameras) • Develop new modules for WALLS (such as tile starting temperature and EFCC operation) • H-mode detector calibration • Develop tools for WALLS offline data analysis • Write documentation |
| Timeline | Throughout 2012 as need arises at JET |

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| Title | Development of a library for GPU-like split of work in MARTe |
| Short description (max. 200 words) | MARTe's traditional approach for parallelizing tasks is to split the problem into several Real-Time Threads. This is usually possible, but it might not always be practical for algorithmic or technical reasons. Also it is not easily scalable with an increase of the available number of CPU cores. This library introduces the possibility of designing the application in such a way as to split work in a GPU-like manner among the available cores of modern CPUs that is easy to implement and scalable without code rewrite. |
| Specific targets | MARTe Real-Time Framework |
| Milestones | <ul style="list-style-type: none"> • Develop and test the library • Apply to WALLS2011 at JET • Integrate it on the standard BaseLib2 library/MARTe framework |

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| Timeline | First half of 2012 |
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3. Expected output

Write at least one scientific paper to be published on an international refereed journal.