Cosmological Simulations in the VO Workshop

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Laurie Shaw & Nic Walton (IoA, Cambridge)

- The continuing rapid advances in parallel computing has enabled many independent groups working towards solving the problems of structure formation in the universe to perform high-resolution, large-scale simulations as an integral part of their investigations

- However,
  - results of many of these simulations are not publicly available
  - the data is stored in a wide variety of (mostly undocumented) formats and systems, often chosen as having been convenient at the time
  - Interchange and direct comparison of results by independent groups is uncommon as often much effort is required in obtaining, understanding and translating data in order for it to be of any use.

➢ Computational Cosmology should be a major beneficiary of an International virtual observatory

- We thus propose a workshop in order to bring together current members of the theory interest group with members of the various groups involved in cosmological simulations to initiate discussions and propose solutions to the issues outlined above.

- Main workshop aims:

    - Decide upon a standard file format for raw simulation data and a metadata language (based on the Universal Content Descriptors used for observational data) with which to describe the contents and which can later be expanded to encompass other forms of astrophysical simulations

    - Identify requirements of the Data Access Layer and Virtual Observatory Query Language working groups so that data from simulations can seamlessly be discovered and retrieved through VO portals.

    - Discuss how simulation analysis tools, especially those for performing simulated observations and for comparing to 'real' data, can be incorporated to maximise their use and effectiveness

- Workshop to be scheduled several months (Jan/Feb) before the IVOA interoperability meeting in May 2006, so that theory requirements outlined can be put forward to the other relevant working groups