Topics and Charges for the Breakout Sessions

- *Monday Afternoon, October 2, 2000*
  What nonlocal infrastructure is necessary (hardware, algorithms/software, data collections) to advance science in your speciality? What national resource(s) would advance both your own work and the IDM community in general? Identify these resources in order of priority.

  Remember that it is now affordable to work with gigabit networks, teraflop machines, clusters of hundreds or thousands of computers, and terabyte-scale storage servers. There are enormous multimedia, text, and data collections ready to be explored. Many research labs have rewritten monolithic systems using object-oriented methods and modern programming languages, and some make software or toolkits available, so it would not be difficult to start to assemble large portable libraries of modules. What facilities are needed to undertake really large experiments (e.g., the Bowtie analysis of the graph structure of the web at IBM) or make comprehensive analysis runs that would answer interesting open problems?

- *Tuesday Morning, October 3, 2000*
  What is the IDM grand challenge?

  Historically, disciplines have been galvanized by significant problems. Examples include the Erlanger program, finite group classification, and the four color problem in mathematics; the search for subatomic particles and a unified field theory in physics; and the human genome project in biology. Such 'grand challenges' unify a large portion of the discipline, make a case for investment of resources, and provide an identity for the field to the public. Does the IDM community have 2 or 3 such problems that could be touted as 'grand challenges' worthy of public support?

  What solutions to IDM problems would have a revolutionary impact? Can we develop a unified theory of data, information, and knowledge? Can we transform the WWW into the 'Semantic Web?' Can we build a universal visualizer? Can we harness computers to increase the 'collective IQ' and 'augment human intellect?'

- *Tuesday Afternoon, October 3, 2000*
  What modes of collaboration can leverage IDM accomplishments?

  Today the IDM community is largely scattered, with few groups of substantive size. At a time when integrated solutions are called for to many of humanity's problems, and when 'big science' often is needed to solve big problems, can we avoid being left behind or ignored?

  In a variety of research domains, the notion of a virtual 'collaboratory' has facilitated nationwide efforts on focussed projects. In some fields, having a small number of national laboratories or centers has brought together a critical mass of researchers. In Germany, the Dagstuhl 'castle' retreat center is booked 50 weeks a year with groups discussing computing in workshops that keep participants away from their offices to launch new partnerships and joint efforts. In IR, the TREC competition has leveraged support flowing through NIST as well as interest in comparing approaches on constrained problems. In areas where testbeds are appropriate, diverse groups have banded together to work on a particular collection of data and application. Which of these, or other solutions, works best for IDM?

- *Wednesday Morning, October 4, 2000*
  What educational resources are needed for a required CS course on IDM?

  In CC2001 (the new curriculum for computing being coordinated under the auspices of ACM and IEEE-CS), there will be some required hours related to IDM. There also will be optional hours in core courses as well as separate focussed courses in this area. How can the knowledge of the relatively small IDM community be shared more broadly with educators around the nation so that these courses attract people to our field? How can the interesting work shown in demos at our conferences become visible in laboratory and homework settings for undergraduate students? How can the opportunity of NSF's support of the National Science (and Mathematics, Engineering, and Technology Education) Digital Library (NSDL - see `www.smete.org`) be exploited so that IDM concepts are more broadly understood by K-12 as well as undergraduate students? How can the expanding interest in data mining, bioinformatics, digital libraries, and other 'hot' fields be harnessed so the latest research becomes available to those interested?

  ACM has launched the Journal of Educational Resources in Computing (JERIC) so there is now a reward mechanism for educators willing to develop effective educational resources. What resources would be most useful for the IDM community? How can our existing efforts be leveraged to produce materials with the greatest pedagogical value?