

in the final analysis

"I said there are maybe 100 billion galaxies and 10 billion trillion stars. It's hard to talk about the Cosmos without using big numbers. . . . But I never said 'billions and billions.' For one thing, it's too imprecise."

— Carl Sagan

In our era of cosmos-sized “big data” challenges and opportunities, headlines spotlight machine learning, computational engineering, informatics, artificial intelligence, 5G networks, data mining, etc., etc. For clarity on what really constitutes big data, I sought expert advice and asked Alexa to define it. “She” told me that “big data” refers to datasets comprising billions or trillions of records. An impressive and Carl-Sagan-sized answer.

While we won't have Alexa on the program, TMS2020 will soon be held in San Diego, California, during February. Big data and new technology will feature strongly at the coming event. It is no trade secret that deep old and new datasets abound in materials and manufacturing. Many of the 85 symposia scheduled at TMS2020 look to be highly infused with the power of massive datasets. How many? Alexa was not able to help with that question (yet), but I took an old-fashioned visual scan through the program for symposium titles that suggest big data underpinnings. By my imprecise count, candidates include Additive Manufacturing; ICME Gap Analysis; Fatigue in Materials: Fundamentals, Multiscale Characterizations and Computational Modeling; Computational Thermodynamics and Kinetics; Advanced Characterization Techniques for Quantifying and Modeling Deformation; Advanced Real Time Imaging; Characterization: Structural Descriptors, Data-Intensive Techniques, and Uncertainty Quantification; Computational Materials Science and Engineering of Materials in Nuclear Reactors; Computational Discovery and Design of Emerging Materials; ICME Gap Analysis in Materials Informatics: Databases, Machine Learning, and Data-Driven Design.

Just as there is considerable intersectionality between information technology and minerals, metals, and materials technology, a similar outpouring of innovation is occurring in the conference management community. The bold strokes at TMS2020 will not be limited to the content of the technical programming alone but will extend into how the content is presented. I call your attention to two in particular.

The first advance is an evolution of our poster session. For those interested in interaction and impact, the new “Diffusion Zone” will be a must-visit venue. It changes our extensive but long-unchanged poster session format with compelling enhancements. There will still be the traditional pinned-up posters, but we are adding digital posters on monitors, embedded demos, a streamlined poster template, and an app-based rating system. Once attendees experience this exciting session as piloted in San Diego, I anticipate a considerable escalation of participation with the new features at TMS2021 in Orlando.

The second advance is the application of a “silent session” format that has been successfully pioneered by multiple technical societies in recent years. It is a grouping of thematically aligned sessions such that they are held concurrently in a single, open exhibition hall—podia, screens, and audience chairs continue to be grouped together, but the sessions are separated by space, not by walls. Attendees of as many as a dozen concurrent sessions will comingle in the great hall and focus their attention on a single speaker among the dozen speakers by using headsets that can be tuned to any podium channel. There is no danger of being crowded out of a session room for a particularly popular talk, there is no lengthy commute between session rooms, there is the ability to sample multiple talks, and there is an assemblage of meeting community on this topic for enhanced networking. It's a bit revolutionary, but also very cool.

As San Diego marks the 149th installment of our annual meeting, the event has clearly gone through many, many (albeit not billions of) improvements since it started in 1871 with inkwells and oil lamps. Over the years, the goal is always the same: Meet colleagues, share and comment on progress in science and technology, and serve the good of the order. Plus, every known dataset says that beautiful San Diego is where you want to be in February.

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