

Mining the Data

Director of IPMU

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This issue of IPMU News features two individuals from the WMAP team. Building upon the success of COBE led by George Smoot that we featured in the previous issue, WMAP was a true game changer. It is a satellite launched by NASA, reported their first results in 2003 that changed cosmology forever. Thanks to WMAP, we know our Universe is 13.7 billion years old, it is *flat*, and more than 80% of matter in the universe is *not* atoms but something unknown. They accomplished this feat by studying the afterglow of the Big Bang called Cosmic Microwave Background (CMB). Because CMB shone out from the Universe when it was only three hundred and eighty thousand years old, and travelled all the way since through the Universe to reach us now, CMB has a lot of information about the Universe.

David Spergel on the front cover is one of our principal investigators, founding members of IPMU, and a leader of our research program. He has been on the WMAP team for 15 years and instrumental in getting the cosmological information from vast and complicated set of data. For his work on WMAP, he will be awarded Shaw Prize later this year. I recommend David's feature article in this issue for everybody with interest in cosmology.

Licia Verde was David's postdoc and had first-hand experience with WMAP data. In her interview with our own Naoki Yoshida, you can read about the excitements she went through on this team. Licia

played a major role in establishing methodology how to mine the complicated WMAP data for hidden gems, which made their results possible and robust.

Understanding the Universe is a big endeavor. We need people building instruments to obtain data, people mining the data for gems, people interpreting the results (gems) to build theories, and people making predictions for the next generation of experiments or observations. We at IPMU wish to have people in all these areas working together towards our goal. And the whole process takes time, sometimes more than a decade as in the case of David.

To make this long process possible, we need stability in our organization. At the inauguration ceremony of the IPMU building, President Jun'ichi Hamada of the University of Tokyo announced that he would make IPMU a permanent entity within the University. This is a critical step for the success of IPMU, and we truly appreciate his commitment. There is a lot to look forward to in the coming years.

