

Foreword

Natural gas is the world's third-largest source of primary energy behind coal and oil, and its demand has been ever increasing due to its favorable impact on the environment. Because gas reserves are often quite distant from the main markets, economic transportation of gas is an essential aspect of the business. While LNG and CNG technologies offer the means of long-distance offshore transportation of gas, pipelines provide the ideal method of transportation onshore and for short distances offshore.

Traditionally, the gas industry has used X60-, X65- and X70-grade steels for the construction of pipelines. Higher-strength pipes would considerably improve the economics of gas transportation through reducing the amount of steel and/or increasing the throughput by transport at higher pressures. In order to produce higher-strength pipelines, it is necessary to develop plate and welding technologies that meet both the strength and toughness requirements. As there have been considerable development activities in this area, the present symposium was organized to provide a forum to discuss the recent advances in materials technologies directed at the economic realization of high-strength pipelines.

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Technical Editor's Note

As one part of the ISOPE mission, our *Journal* publishes issues featuring recent significant advances in research on emerging topics of high interest. Past topics have covered deep-ocean technology in the 6,000-m-depth range and cable mechanics.

The original papers in this feature issue on high-performance pipeline technology were presented at the *ISOPE Symposium on High-Performance Materials in Offshore Industry, the 13th International Offshore and Polar Engineering Conference (ISOPE-2003)*, Honolulu, Hawaii, USA, May 25–30, 2003, which was initiated and organized by Dr. Raghavan Ayer and Dr. J. Y. Koo of ExxonMobil Research and Engineering Company. Upon further reviews of the papers that the *Journal* editorial board selected after the presentations, the original versions were revised prior to the final revised manuscripts. One paper was received too late for inclusion and will appear in our next issue.

While the papers in feature issues always attract attention, the papers in this issue have attracted a great deal of attention from the industry, research and government communities. For example, the Library of Congress—the U.S. congressional research service—called the X100 and X120 high-strength pipeline steel a “technology breakthrough” in its report to Congress in 2003. Steel of these grades has not been manufactured anywhere. The peer reviewers of the papers to be published in the *Journal* also praised these papers as a “technology breakthrough.”

On behalf of our editorial board, I would like to express our appreciation of this significant contribution by the authors and their companies, and ExxonMobil Research and Engineering Company, ExxonMobil Upstream Research Company and Nippon Steel Corporation in particular.

Jin S. Chung
Technical Editor