



# Editorial

## European Research and Analysis of Buckling

The special topic articles contained within the following pages are comprised of works from our European Community who has aggressively tackled the intricacies associated with various topics that are ultimately affected by buckling and the instabilities reflective of the same. The majority of the seven papers that are contained within the special topic entitled *European Research and Analysis of Buckling* originated within the Seismic Analysis Committee and the Design and Analysis Committee of the American Society of Mechanical Engineers (ASME) Pressure Vessels and Piping (PVP) Division. To say that these works are reflective of the constituency of these two technical committees is not only true but can be substantiated by the diversity represented by the international affiliations of each of the authors, the specific topics addressed by these authors, and the clear division between industry and academia. Furthermore, the inclusion of the regional interest in such a special topic as buckling is also reflective of the global nature of ASME's worldwide reach and effect way beyond the borders of North America.

In the specialized arena of buckling, a strong base and significant contributor to the pool of knowledge in the pressure vessels and piping disciplines can be traced to the 1940s and to Dr. Warner Koiter of Delft University of the Netherlands. Almost every modern day paper on the subject references the doctoral thesis of Dr. Koiter and its 1960s English translation that was a result of the National Aeronautics and Space Administration's (NASA) interest in the topic as it related to rockets, nose cones, and other shell structures of the early space-age. It is only proper and fitting that in the opening issue of the Journal of Pressure Vessel Technology (JPVT) in 2011 that we devote a section to the recent research by the European Community on buckling and instability of piping and pressure vessels for our readers.

A quick glance through the table of contents to the left of this page will lead the reader immediately to the topic(s) of interest. Furthermore, the readers of this issue, which includes the seven special topic articles on buckling, are encouraged to revisit the table of contents for a second glance to then pick additional articles outside of their traditional interests to read in order to expand their exposure, if not their understanding, of the multitude of pressure vessel and piping topics included herein. Only after the reader has reviewed and hopefully read the full collection of works by the contributing authors can an understanding be gained of the breadth of subject material covered by the various ASME PVP Division Technical Committee members. Some of the topics included within the special topic of European Research and Analysis of Buckling are an analysis of external pressure on heli-

cal coil nuclear steam generator tubes, the effects of bending on instability of tubes, stability of shell structures as addressed by Eurocode 3, plastic collapse loads as determined through the use of finite element analysis, buckling strength of imperfect shells, instability of stiffened cylinders, and local buckling of liner pipes. All of these subjects are, indeed, reflective of both industry's and academia's charge to address significant issues surrounding the pressure vessel and piping industry.

The effort that goes into putting just a single JPVT issue together is transparent to the reader of the Journal. The obvious efforts of the authors are easily recognized by the published words contained in the following pages. The behind-the-scenes efforts of so many additional people are not so easily recognizable. Some of these people include the many peer reviewers (several per paper), the original session developers from the PVP Division Conferences from where a number of the included papers originated, the staff of ASME publications, and, of course, the editor of the ASME JPVT, Dr. G. E. O. Widera and his quite capable assistant, Ms. Jessica Bulgrin. Both of these folks deserve thanks for guiding and keeping this Guest Editor on schedule through the process of assembling a special topic to be included in this issue to highlight some of the works of our colleagues from the European Community.

On a more personal note, thanks goes to all of the authors for their fine work and, one in particular, whose idea for the special topic made this possible. Professor Spyros Karamanos of the University of Thessaly in Greece suggested to me over 18 months ago that we compile a series of papers on the current European research in buckling. Professor Karamanos has published a significant number of articles in the field of instability and buckling, starting with his time at the University of Texas as a graduate student in the early 1990s. I have also had the pleasure of utilizing Spyros' prior works in my own solutions to a host of instability problems and in guiding my own graduate students with similar interests. Thanks again to my friend and European colleague Professor Karamanos for all of your work in the field of buckling and for contributing so much to the Journal, to the special topic included herein, and to the ASME PVP Division. Finally, I will speak for everyone involved in the assembly, review, and publication of this issue; we hope you enjoy the articles we have selected for you.

**Dennis K. Williams**  
Guest Editor