

## **INTRODUCTION**

The IDDRG, International Deep Drawing Research Group, was started in 1957 as an organization of national groups devoted to the study of sheet forming.

At this time, many types of sheet metal forming operations were well understood and, particularly, the differentiation between modes of deformation was already established: stretching, plane strain, shear, and shrink drawing. However, the latter – fabrication of cups – was not so well understood and, particularly, the influencing mechanical characteristics were not identified.

Some thought that earing was detrimental, others that the yield point elongation had to be avoided (killed steels performed better than rimmed steels) but there were counter-examples and things were not so clear.

This is why English, Swedish, and Dutch researchers had contact to gather their forces on this topic. They decided to meet in Amsterdam in March 1957, inviting representatives from Germany, Belgium, France, and Chile. The only goal was to understand cup forming, hence the name of Deep Drawing Research Group which was chosen at the end of this event.

The first international conference was organized in Paris in May 1960, gathering 212 attendees from 15 nations. At the end of this conference, the initial purpose of the IDDRG was enlarged to consider more topics than initially proposed. It was to do cooperative research on tests, materials, and processes. Such work included methods for determining the strain-hardening exponent  $n$ , R-value, other tests for sheet metal formability and, later, forming limit curves.

Starting at this conference, a schedule was established for working group meetings every year with open Congresses in even-numbered years. The working group meetings were closed sessions made up of delegations from the National Groups that comprised the IDDRG. The reason for these closed sessions was to allow experts to informally review critical issues related to materials, tests, and processes.

As some of the initial technical issues were resolved, the working group meetings became progressively more informal, and over the years became mini-conferences. By 1998, it had become obvious that the format of the IDDRG needed to be changed. This evolution took time, but starting in 2003, the meeting schedule shifted to yearly conferences with both regular papers and poster papers that were included in the conference proceedings.

## **MISSION STATEMENT**

The yearly conference of the IDDRG is devoted to experimental and computational papers with industrial relevance that are presented by academic and industrial researchers. The intent of the conference is to present new work that stimulates thinking and provides opportunities for informal discussion among researchers in sheet metal formability. Written proceedings, which include papers, are published - for many years through the distribution of printed conference books, then as CD-ROMs

containing all papers, and since 2016 as Open Access proceedings released on the internet through a publisher, *IOP Conference Series: Materials Science and Engineering*. The IDDRG maintains a library of papers going back to 1960, the Leddy Library of the University of Windsor, Canada.

## **ACTIVITIES**

Conferences are scheduled for May or June in Europe, North America, Asia or Australia. However, most conferences are held in Europe because most of the current membership resides in Europe. Conferences start with an informal reception on Sunday evening followed by two and a half days of technical sessions. Ample time is allowed for technical discussion, and various social events are scheduled in association with the conference.

To provide a focus for the next conference, the Executive Committee of the IDDRG uses input from members attending the previous conference to select topics of interest in sheet metal forming that will provide new information and facilitate the exchange of ideas on these topics. Typical topics include machinery and press tools, new processes, new materials, experimental methods for evaluating formability and studying press operations, springback, constitutive equations, plasticity criteria, and friction and wear with attention to interface behavior as characterized by topography and surface chemistry, lubrication, speed, pressure, and temperature.

Submissions are reviewed by a scientific committee to select the best papers. Papers that are not selected for publication and presentation can be presented as posters if they have acceptable technical quality. Commercial content is not acceptable in IDDRG papers.

While mathematical modeling is important in studies of sheet metal formability, for IDDRG papers, mathematical modeling should be a tool, not a topic in itself. Thus, topics such as new algorithms, innovative shell or solid elements, time integration schemes, etc. are not considered for presentations or posters.

Paper proceedings are distributed to all attendees at the start of the Conference. Talks are scheduled for fifteen minutes followed by five minutes for questions and discussion. Furthermore, the conferences are organized so that there is ample time for further discussion. English is the official language of the IDDRG.

## **ORGANISATION**

The officers of the IDDRG are the President, Secretary General, Vice Presidents, Treasurer, and active past presidents. The officers of the IDDRG comprise the Executive Committee. The members are selected for their expertise and to represent, as far as possible, the geographic distribution of the member countries.

Specific responsibilities of Vice Presidents are to contact and represent the National delegations in their geographic area and to chair technical sessions at conferences. Current members of the Executive Committee select new members.

### **Current members of the Executive Committee include:**

- Nico Langerak, the Netherlands, President
- Nader Asnafi, Sweden, Secretary General since July 2019 and Vice President since July 2008
- Abel Santos, Portugal, Treasurer
- Leo Wagner, Austria, Vice President
- Michael Worswick, Canada, Vice President

- Shi-Hong Zhang, China, Vice President
- Pasi Peura, Finland, Vice President
- Patrick Duroux, France, Vice President
- Wolfram Volk, Germany, Vice President
- Mathias Liewald, Germany, Vice President, Responsible for standardization issues
- Zsolt Lukács, Hungary, Vice President
- Krishnaiengar Narasimhan, India, Vice President
- Eiji Izuka, Japan, Vice President
- Myoung-Gyu Lee, Korea, Vice President
- Gašper Gantar, Slovenia, Vice President
- Eneko Saenz de Argandoña, Spain, Vice President
- Dirk Mohr, Switzerland, Vice President
- Celalettin Karadogan, Turkey, Vice President
- Kester Clarke, USA, Vice President

#### **Past presidents and Secretary Generals:**

- Alain Col, France, Past President
- Bernard Levy, United States, Past President
- Chester Van Tyne, United States, Secretary General 2009-2019

#### **MEMBER COUNTRIES**

Australia, Austria, Benelux (Belgium, Luxemburg, and the Netherlands), Brazil, Canada, Czech Republic, China, Denmark, Finland, France, Germany, Hungary, India, Italy, Japan, Korea, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and the USA.

#### **PAST MEETINGS**

|                                      | <b>Presidents</b>  |
|--------------------------------------|--------------------|
| 1957 Foundation IDDRG                | Dr. G. de Witte    |
| 1960 Paris (France)                  | Prof. C. Crussard  |
| 1961 Baarn / Hilversum (Netherlands) |                    |
| 1962 Düsseldorf (Germany)            |                    |
| 1963 Stockholm (Sweden)              |                    |
| 1964 London (England)                | Prof. A. J. Murphy |
| 1965 Philadelphia (USA)              | Prof. G. A. Homes  |
| 1966 Liège (Belgium)                 |                    |
| 1967 St Germain en Laye (France)     |                    |
| 1968 Turin (Italy)                   | Prof. O. Masi      |
| 1969 Madrid (Spain)                  |                    |
| 1970 Tokyo (Japan)                   | Prof. S. Fukui     |
| 1971 London (England)                |                    |
| 1972 Amsterdam (Netherlands)         | Dr. C. Veerman     |
| 1973 Zürich (Switzerland)            |                    |
| 1974 Göteborg (Sweden)               | Prof. O. Svahn     |
| 1975 Düsseldorf (Germany)            |                    |
| 1976 Ann Arbor (USA)                 | Dr. S.P. Keeler    |
| 1977 Warsaw (Poland)                 |                    |
| 1978 Warwick (England)               | Prof. D.V. Wilson  |
| 1979 Liège (Belgium)                 |                    |

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|------|-----------------------------------------------|--------------------------------|
| 1980 | Metz (France)                                 | Dr. G. Pomey                   |
| 1981 | Tokyo (Japan)                                 |                                |
| 1982 | Santa Margherita Ligure (Italy)               | Mr. P. Timossi                 |
| 1983 | Helsinki (Finland)                            |                                |
| 1984 | Melbourne (Australia)                         | Dr. I. Brammar                 |
| 1985 | Amsterdam (Netherlands)                       |                                |
| 1986 | Cologne / München (Germany)                   | Dr. C. Schneider               |
| 1987 | Schaffhausen (Switzerland)                    |                                |
| 1988 | Dearborn (USA) / Toronto (Canada)             | Dr. S. P. Keeler               |
| 1989 | Budapest (Hungary)                            |                                |
| 1990 | Borlänge / Göteborg (Sweden)                  | Dr. Y. Bergström               |
| 1991 | Pisa (Italy)                                  |                                |
| 1992 | Shenyang (China)                              | Prof. Shi Changxu              |
| 1993 | Linz (Austria)                                |                                |
| 1994 | Lisbon (Portugal)                             | Prof. M. Barata Marques        |
| 1995 | Colmar (France)                               |                                |
| 1996 | Eger (Hungary)                                | Prof. M. Tisza                 |
| 1997 | Haugesund (Norway)                            |                                |
| 1998 | Genval (Belgium)                              |                                |
| 1999 | Birmingham (England)                          | Dr. B. Levy                    |
| 2000 | Ann Arbor (USA)                               |                                |
| 2001 | Espoo (Finland)                               |                                |
| 2002 | Nagoya (Japan)                                |                                |
| 2003 | Bled (Slovenia)                               | Dr. E. Kleemola                |
| 2004 | Sindelfingen (Germany)                        |                                |
| 2005 | Besançon (France)                             | Mr. A. Col                     |
| 2006 | Porto (Portugal)                              | Prof. A. Santos                |
| 2007 | Győr (Hungary)                                | Prof. M. Tisza                 |
| 2008 | Olofström (Sweden)                            | Associate Prof. N. Asnafi      |
| 2009 | Golden (USA)                                  | Dr. N. Langerak                |
| 2010 | Graz (Austria)                                |                                |
| 2011 | Bilbao (Spain)                                | Prof. Eneko Saenz de Argandoña |
| 2012 | Mumbai (India)                                | Prof. K. Narasimhan            |
| 2013 | Zurich (Switzerland)                          | Prof. P. Hora                  |
| 2014 | Paris (France)                                | Dr. P. Duroux                  |
| 2015 | Shanghai (China)                              | Prof. Shi-Hing Zhang           |
| 2016 | Linz (Austria)                                | Dr. N. Langerak                |
| 2017 | Munich (Germany)                              | Prof. W. Volk                  |
| 2018 | Waterloo (Canada)                             | Prof. M. Worswick              |
| 2019 | Enschede (the Netherlands)                    | Dr. N. Langerak                |
| 2020 | Seoul (Korea), held virtually/digitally       | Prof. M.-G. Lee                |
| 2021 | Stuttgart (Germany), held virtually/digitally | Prof. M. Liewald               |
| 2022 | Lorient (France)                              | Prof. S. Thuillier             |
| 2023 | Luleå (Sweden)                                | Prof. N. Asnafi                |
| 2024 | Melbourne (Australia)                         | Prof. B. Rolfe                 |
| 2025 | Lisbon (Portugal)                             | Prof. P. A. F. Martins         |