



The 2nd Furnace Tapping Conference (Furnace Tapping 2018) was held in Skukuza, the main camp of the world-renowned Kruger National Park, from 14 to 17 October 2018. As with the 1st Furnace Tapping Conference (Furnace Tapping 2014), Furnace Tapping 2018 was well supported and attended by 144 delegates from 17 different countries spanning five continents.

A problem-based event, the Furnace Tapping conference series was established to serve the pyro-metallurgical industry at large, focusing on a very specific challenge: tapping of furnaces. Drawing from various perspectives on the topic, participants represented industry, consultants, service providers, and research institutions. The latter were a welcome addition to the conversation with contributions from Mintek, the Norwegian University of Science and Technology, SINTEF, and Carnegie-Mellon University gratefully acknowledged. These institutions all delivered on the call, issued in the Journal Comment for Furnace Tapping 2014, for '*strong contributions from research institutions (focusing on the application of CFD modelling with associated assumptions, including properties of materials and validation of these models; studies on taphole clay; and studies on refractory interaction with slag/metal/matte specifically under the tap-hole conditions)*'.

Professor Chris Pistorius, co-director of the Centre for Iron and Steelmaking Research at the Carnegie Mellon University in Pittsburgh, delivered the opening keynote presentation. He discussed infrared imaging at longer wavelengths as an effective non-contact method to detect slag in the tapping stream during the steelmaking process, as well as various devices used to rapidly shut off the tapping stream. Many of these technologies should be transferable to other commodities. Members of the audience expressed their appreciation for the knowledge he shared from a commodity not otherwise presented at the conference.

Kobus Sutherland, operations manager at Transalloys, shared his perspective on managing the tap-hole life-cycle as part of his keynote address on the second day of the event. Using the analogy of an ant falling into the trap of an antlion, he explained that the strategy followed at the largest producer of silicomanganese in Africa is one of staying out of trouble rather than trying to fix things. The practical nature of his presentation was well received by the audience.

Over the two days, presentations ranged from operational practices to tap-hole designs, material and equipment selection, and the application of various modelling techniques in optimizing these aspects. The technical programme closed with an interactive workshop on the second day that allowed delegates to reflect on some critical aspects of furnace tapping, steering the direction for potential multidisciplinary research and other collaborations in the field.

A well-supported programme of post-conference technical tours was arranged on the third day. Delegates were offered the opportunity to join the industrial tours to the Polokwane Smelter of Anglo Platinum or to visit the facilities of Neven Matthews in Emalahleni. We are grateful for the opportunities provided by both companies.

The Kruger National Park, with nearly 2 million hectares of unrivalled diversity of life forms, offers a wildlife experience that ranks with the best in Africa. Apart from animals in the environs of the camp, delegates viewed wildlife while being transported in open vehicles to the welcoming function as well as the conference dinner. Both events occurred in the bush with no fencing between people and animals. The conference dinner was a magical experience, with hyenas patrolling the perimeter and delegates being appreciative of and even participating in the cultural programme of dancing and singing. Once the formal programme for the evening concluded, the Chileans and South Africans even held an impromptu sing-off contest while waiting for the vehicles to depart for camp!

The peer review process was taken very seriously. All the papers published in the conference proceedings were independently peer-reviewed. The organizers drew on the expertise and insights of a group of specialists from around the world who generously offered constructive criticism and suggestions. We are grateful for the inputs from these expert reviewers, and also for Nazli Mamdoo, publications coordinator of the SAIMM, who co-ordinated the process and to Antony Cowey who proofread and edited the proceedings.

We appreciate the time and effort that authors put into their papers and presentations.

The SAIMM has a policy of making papers from the Furnace Tapping conference series freely available *via* open access: papers for Furnace Tapping 2014 are available at www.saimm.org.za/Conferences/FurnaceTapping/ and for Furnace Tapping 2018 at www.saimm.co.za/Conferences/FurnaceTapping2018/. The assistance of Dr Rodney Jones, with his passion for open access publishing, is gratefully acknowledged.

This edition of the *Journal* contains a selection of the excellent papers that were presented at Furnace Tapping 2018 and proposed for publication in the *Journal* by both conference peer reviewers. Each of the papers published here has been through a second formal peer review process, this time in line with the requirements of the *Journal*.

I am very grateful to the members of the Organizing Committee and their employers for their contributions to making the event such a success: Hannes Goosen and Vicky Visser (Dango and Diententhal South Africa), Isabel Nolet (Hatch), Lars Lindstad (Elkem Carbon), Elias Matinde (University of the Witwatersrand), Rodney Hundermark (Anglo American), Harmen Oterdoom (SMS Group), and Quinn Reynolds and Wesley Banda (Mintek).

Special thanks are due to the SAIMM conferencing and publishing teams for hosting and ensuring the smooth running of this event.

The support of our sponsors and exhibitors is greatly appreciated.

I am looking forward to participating in future discussions on furnace tapping, leaving you with words of Oriah Mountain Dreamer in *The Invitation*: 'I want to know if you will stand in the centre of the fire with me and not shrink back'.

J.D. Steenkamp

Chairperson of the organising committee, Furnace Tapping 2018