The 2012 International Conference on Powder Metallurgy and Particulate Materials, PowderMet 2012, sponsored by MPIF/APMI International was held 10-13 June at the Gaylord Opryland Hotel, Nashville, Tennessee, USA, and attracted an attendance of about 800. Opening the proceedings, MPIF executive director/CEO James Trombino welcomed delegates from over 20 countries at the Opening General Session, introducing the new president of MPIF Matthew Bulger (NetShape Technologies). His message: the North American PM industry had recovered and is back in full swing.

Bulger (Figure 1) added his welcome and then reviewed highlights from the State of the PM Industry Report, noting that the recovery continued in all materials, processes, and market sectors, while many in the industry were confident the recovery was sustainable. Iron powder shipments rose a modest 3% in 2011 to 363,831 short tons (330,068 mt) after recovering strongly in 2010. Almost all North American automotive PM parts manufacturers registered double-digit gains in 2011, some more than 25%. The PM content of a typical North American car rose 5% to 44 lb (20 kg), representing consumption of 290,000 short tons (263,088 mt). Shipment of copper, copper-base, and tin powders recovered to 17,002 short tons (15,424 mt), while stainless steel powder shipments rose about 5% to an estimated 7,000 short tons (6350 mt). Shipments of MIM powders, including imports, jumped nearly 40% in 2011.

Hot isostatic pressing (HIP) also experienced robust growth in 2011, thanks to a general recovery in manufacturing and gains in the oil-and-gas, tool steels, and aerospace markets. The HIPing of MIM parts continued to be a growing market.

Sustained growth predicted

Bulger reported that the North American PM industry began 2012 on a very positive note: Q1 shipments of metal powders were up, as were production of PM and MIM parts. Iron powder shipments rose to about 135,000 short tons (122,000...
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mt), and powder producers were said to be expecting a 5 to 6% increase for the whole of 2012. US sales of light vehicles were expected to exceed 14 million units, up over 10% from the 12.8 million sold in 2011.

Bulger went on to point out that one of the key issues now facing the entire North American PM industry was the serious need for experienced production workers and PM engineering professionals. The industry-wide employee reductions during the recession have proved difficult to reverse as business has recovered. Capacity constraints are also looming with rising demand from the auto industry. Rationalisations that took place in 2008-9 included several plant closures and the scrapping of older equipment. Because of the time required to build and commission high-end presses, Bulger cautioned that equipment investment should not be delayed.

It was noted that PM could be approaching a saturation point in auto-engine applications with existing technology

Within the automotive sector, perhaps surprisingly, it was noted that PM could be approaching a saturation point in auto-engine applications with existing technology. The average North American auto engine now contains up to 50 PM parts, weighing over 18 lb (8.2 kg), so potential growth was more likely to be in transfer case and transmission parts. So where is the industry headed? The MPIF Technical Board, the Industry Development Board, and additional industry experts recently updated the PM Industry Roadmap, first developed in 2001. The updated roadmap (see separate article, page 10) shows the industry has made steady progress in high-density processing, new materials, 3D forming systems, modelling and additional manufacturing methods. The new Roadmap “identifies three main topics that will impact the industry’s growth: high-density PM components, processing of lightweight materials, and electrical and electromagnetic applications. While the current PM industry is driven by automotive applications, growth in the next decade must be found in other markets. The overall need for alternative energy sources should open new markets and applications for PM.”

Next, Trombino introduced the Keynote speaker, Drew Winter (Figure 3), a celebrated automotive journalist and Editor-in-Chief of WardsAuto World magazine, who has been following the auto industry for more than 30 years. His theme, “America’s New Auto Industry,” was highly appropriate for the location in Nashville, as his remarks revealed. He began his talk by recounting how, at the dawn of the 20th century, it took a tenacious, stubborn, determined Henry Ford to overcome patent holder George Selden who had been stalling the progress of US automotive builders for years. To succeed in the auto industry, one needed to be very tough and resilient. However, when automotive companies came back from the brink (of failure) they usually came back very strong. Henry Ford’s company did not always succeed and in 1945 was faced with near-collapse. His grandson, Henry Ford II, forced him out and rebuilt...
the company – classed as one of the greatest come-backs in industrial history – and went on to be very successful in the 1950s before going through a number of boom and bust cycles in which it nearly went bankrupt again. The other Detroit Big 3 went through similar boom-and-bust cycles, which are not unique to Detroit or the USA: Nissan, VW, Porsche, BMW and others have all faced extinction at one time or another. Now, Detroit is back, Toyota and Honda have recovered from last year’s earthquake, tsunami and disastrous floods in Thailand, “and the US auto industry is set to deliver a great second half of 2012.” It was often forgotten by Wall Street and others how durable the automotive manufacturers were and how important they were to the economies of regions they served – local or national.

Contra to the opinion that auto companies were too big and stodgy to change, Drew said they really could change – Detroit-based auto companies were now very different compared with a few years ago, illustrating the point with photos of successive car models, including disas-

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**Figure 5:** Grand Prize winners in the 2012 PM Design Excellence Competition. (Photo courtesy MPIF)

**Figure 6:** Award of Distinction winners in the 2012 PM Design Excellence Competition. (Photo courtesy MPIF)

**Figs. 7 – 12:** Busy scenes at the 2012 PM industry trade exhibition. (Photo credits: Joseph Capus)
tous ones. Even GM has recovered since designers have been put back in charge instead of “engineers and professional managers”(!) more concerned with manufacturing efficiency and budgets.

The low US dollar and moderating labour costs are making the US a low-cost manufacturing site

“Despite all the scary outlook for the Western economy, new vehicle sales are looking good and most analysts are still very optimistic about the rest of [this] year […] What is driving the figures for [US] sales and production is pent-up demand and better availability of credit to buy new vehicles.” Drew said that the average age of cars and light trucks in the US was now about eleven years, the oldest ever. If the average is eleven years, there must be a lot of much older vehicles “that are nearing their last breath,” he said. Furthermore, attractive new models due to be coming out in the next few years will also stir up sales. He added that the soaring yen is making it more difficult to sell Japanese-made cars in the US, leading to “import replacement.” The low US dollar and moderating labour costs are making the US a low-cost manufacturing site, especially in the South, and attractive also to European automakers. He went on to mention some of the Japanese and German companies as well as the Detroit 3 that are expanding capacity in the southern states. The “new American auto industry” is the South, which will rise to produce one-third of North American output by 2014. Increased capacity, especially for Mercedes and BMW, will also mean more production for export to overseas markets. “While the overall US economy is growing at a much slower pace than anyone was hoping for, the auto industry should see double-digit expansion for the rest of this year […] and auto sales [are] on target to soar well over 14 million units [in 2012].”

Awards and prizes
A number of awards were made during the conference. First, the Technical Program Committee co-chairmen, Ian Donaldson (GKN Sinter Metals) and Nicholas Mares (Asbury Graphite Mills, Inc.) were recognised at the Opening Session, Figure 4. At the Awards luncheon, two new recipients were named Fellows of APMI International; Ian Donaldson, GKN Sinter Metals, and Al Dornisch, consultant, while Alan Lawley, Professor Emeritus at Drexel University, received the Kempton H Roll PM Lifetime Achievement Award. In addition, several other awards and recognitions were made, including the Howard I. Sanderow Outstanding Technical Paper Award, and the Excellence in Metallography Award.

At the PM Design Excellence Awards Luncheon on 12 June, ten Grand Prizes (Figure 5) and ten Awards of Distinction (Figure 6) were handed out to winning companies. (See separate article, page 16). A display of all the entries in the competition was mounted in the Exhibition Hall, with winners identified following the Awards Luncheon, forming a Showcase of PM Excellence.

A full house of exhibiting companies and PM-related organizations was well attended and the mood reflected the upbeat tone of the opening speakers (Figures 7-12). However, there did not seem to be a lot of new product offerings on display, perhaps a reflection of the recent economic difficulties.

Technical programme
The technical programming included 35 technical sessions as well as four special interest programmes and a poster show. In addition, there were four management-oriented programmes open only to registrants from MPIF member companies. In the main technical sessions and the special interest programmes, topics included some emerging themes such as PM light alloys (magnesium and titanium) and spark plasma sintering, as well as the familiar subjects of atomization, lean (ferrous) alloy developments, metal injection moulding, sintering, machinability, and carbides, etc.

Proceedings of the technical sessions, poster programme and special interest programmes (where applicable) will be published shortly in CD-ROM format by the MPIF.