

Editorial

Fellows of the World Academy of Materials and Manufacturing Engineering come from many countries of the World. A few of them are professors of universities from South Korea. In editorials of the next issues of Journal of Achievements in Materials and Manufacturing Engineering I bring close the subsequent countries to P.T. Readers. This time it is South Korea. This issue of Journal JAMME is dedicated to Professor Yong-Taek Im, a WAMME Fellow and a Deputy of Editor-in-Chief of the Journal JAMME, responsible for the international cooperation with KAIST in Daejeon, South Korea, who is generous with the subsequent AMME conferences and COMMENT Congresses for many years as in the current year.

The popular name of South Korea, officially the Republic of Korea and often referred to as Korea is "Land of the Morning Calm". It is a country in East Asia. South Korea is occupied by the southern half of the Korean Peninsula and is neighbored by China to the west, Japan to the east and borders North Korea to the north. It is a member of the United Nations, WTO, OECD and a founding member of APEC and the East Asia Summit, and a major non-NATO ally of the United States. South Korea's transformation into a developed country during the latter half of the 20th century is often called the Miracle on the Han River, and South Korea is considered one of the "Four Asian Tigers". It is a developed country with a high standard of living with the 4th largest economy in Asia and the 15th largest in the world. An extremely competitive education environment and motivated workforce are two key factors driving this knowledge economy. South Korea is regarded as a strong economy, despite lacking natural resources and having the smallest territory among the G-20 major economies. Like West Germany and Japan, rapid industrialisation since the 1960s has made South Korea one of the world's top ten exporters. It has the second highest savings rate in the developed world and has the world's sixth biggest foreign exchange reserves. It is leading in technologically advanced goods

such as electronics, automobiles, ships, machinery, petrochemicals and robotics. Many globally well-known South Korean concerns such as Samsung, Hyundai-Kia, Hyundai Heavy Industries, LG, SK, and POSCO have rapidly grown to become world leaders in their respective industries. Samsung Group is the world's largest concern and a leading consumer electronics brand and the world's 12th largest company and a global consumer electronics brand. South Korea has a highly developed high-tech infrastructure, with the world's highest broadband internet access per capita. In consumer electronics, South Korea is the world's largest LCD, OLED and plasma display maker. Both Samsung and LG are major makers of televisions and mobile phones. Cell phones such as Samsung and LG brands are major industry in South Korea. South Korea is also the world's leading memory chip producer and Samsung and Hynix are the world's second and sixth largest semiconductor companies in the world. Samsung is also the world's largest maker of laser printers. Samsung Techwin is the world's third largest maker of digital cameras. Hyundai-Kia Automotive Group, the 2nd largest automaker in Asia and fifth largest in the world as of 2008. Hyundai Heavy Industries is the world's largest shipbuilder, along with POSCO, the world's 2nd largest steel maker. It is the world's sixth largest steel producer. South Korea also exports radioactive isotope production equipment for medical and industrial use to countries such as Russia, Japan and Turkey. South Korea is the world's sixth largest nuclear power producer and the second largest in Asia. Nuclear power in South Korea supplies 45% of electricity production and research is very active with investigation into a variety of advanced reactors, including a small modular reactor, a liquid-metal fast/transmutation reactor and a high-temperature hydrogen generation design. Fuel production and waste handling technologies have also been developed locally. I bring closer three cities important in the country in turn.

Seoul, one of the largest metropolitan city in the world is the capital of South Korea. It, is consistently placed among the world's top ten financial and commercial cities. The city is located on the basin of the Han River in the country's north-west. An important settlement for over two millennia, Seoul's history dates back to 18 BC, when Baekje, one of the Three Kingdoms of Korea, established its capital Wiryeseong in what is now south-east Seoul. Modern Seoul descends from the Goryeo-era city of Namgyeong, which then became the capital of Korea during the Joseon dynasty. The Seoul National Capital Area includes three UNESCO World Heritage Sites: Changdeokgung, Hwaseong Fortress and the Jongmyo Shrine. Seoul's influence as a leading business, financial, technology and cultural centre contributes to its status as a major global city. Seoul has one of the world's most technologically advanced infrastructures. Seoul Station houses 300 km/h KTX bullet trains and the Seoul Subway is currently the third largest in the world, with over 2 billion passengers every year. AREX train connecting Incheon and Gimpo Airport. Seoul is connected to every major city in Korea by railroad. It is also linked to most major Korean cities by the KTX high-speed train, which has a normal operation speed of more than 300 km/h.

Pohang is the home of the Pohang Iron and Steel Company, or POSCO, is the world's second largest steel producer, and a host of related industries. As a result of the steel industry, the port of Pohang is active. Pohang is a city in North Gyeongsang Province, South Korea. Pohang, previously a fishing port whose major industry was processing fish and marine products, became a major industrial centre with almost 520,000 people. In addition to the huge integrated steel mill, Pohang became an industrial complex housing companies that manufacture finished steel products of raw materials provided. Currently, POSCO operates two steel mills in the country, one in Pohang and the other in Gwangyang. Along with Samsung, POSCO is viewed by many

Koreans as a symbol of national pride and 'can do' spirit. With the strong Korean ship-building and automobile industry dependent on POSCO for steel, it has been seen as the bedrock of Korea's industrial development over the past 40 years. With increasing global competition, POSCO looked to China and India

for new opportunities. In June 2005, POSCO signed a memorandum of understanding with the State of Orissa in India. Under the agreement, POSCO plans to invest to construct a plant with four blast furnaces, an electricity plant, housing, and an annual production capacity of 12 million tons of steel, which is slated to start production in 2010. If the project goes ahead, it will be the single largest foreign direct investment in India as well as being the world's biggest greenfield steel plant ever. By 2006, POSCO invested in fresh investment on mainland China, especially in galvanized and stainless steel to supply global auto and appliance makers that have opened plants there. In 2006, POSCO started operating the Zhangjiagang Pohang

Stainless Steel (ZPSS) steel mill capable of producing 600,000 tons of stainless steel and hot-rolled products annually in China's Jiangsu Province. POSCO have pursued investment opportunities in other developing countries such as Vietnam and Mexico. It was announced in August 2006 that POSCO will build a large-scale steel mill in southern Vietnam. On 30th June, 2006, POSCO completed the construction of its sixth continuous galvanizing line (CGL) at its Gwangyang mill in the South Jeolla Province. With this new addition, POSCO becomes the 2nd producer of sheet-steel just behind ArcelorMittal.

Daejeon is the capital city of Chungcheongnamdo Province, located in the centre of South Korea. It is the fifth largest city in South Korea. The Daejeon area was historically known as Hanbat, a native Korean term for "large field", during the Joseon Dynasty. The term "Daejeon" simply means the same thing in Hanja. Daejeon features twenty-three research institutes. The best known among them are the Korea Research Institute of Bioscience and Biotechnology (KRIIBB), the Korea Atomic Energy Research Institute (KAERI), a leader in nuclear power, the Electronic and Telecommunications Research Institute (ETRI) whose WiBro technology has been adopted as the international standard for 3G wireless communication, the Korea Aerospace Research Institute (KARI), a developer of the KOMPOSTAT satellite programme and the National Fusion Research Institute which just unveiled the KSTAR nuclear fusion reactor. KAIST (formerly known as Korea Advanced Institute of Science and Technology) is a research university located in Daejeok Science Town, Daejeon, South Korea. KAIST was established in 1971 as the nation's first graduate school specialising in science and engineering education and research. In January 2008, the university dropped its full name, Korea Advanced Institute of Science and Technology, and changed its official name to only KAIST. It is the nation's leading science and technology institution and is considered to be the MIT of South Korea. The University helped pioneer establishment of competitive graduate school programmes in Korea. The goals of KAIST are to become one of the best science and technology universities in the world, and to become one of the top-10 universities by 2011. Over the last 36 years, KAIST has educated 33,380 scientists and engineers, 6,867 PhD graduates, 17,911 master's degree holders and 8,602 bachelor's degree holders. KAIST is home to young doctorate degree holders who are in their twenties, with 43 percent, or 2,920 out of 6,726 doctoral graduates, in their twenties upon graduation. KAIST graduates are working in universities, businesses and research institutes as well as in some of the most prestigious schools abroad.

As usual I invite P.T. Readers to read the next Issue of Journal JAMME, and also encourage P.T. Readers to publish their next papers in the journal. I thank all who contribute by their work and involvement cause that the next issues of the monthly have been systematically published for last few years.



Gilwice, in 2009

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