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Supercomputer: Computation made Virtual Reality

Anil Kumar Ghosh

Computing: At the entire supercomputer centre in Stuttgart complex factual situation is simulated still more here the future is experimentally anticipated. Uwe Wössner scaled the tiniest injecting beam high with few clicks. Even the thin finally 0.4 mm wide beam as the whole to be seen on the projection surface and now Wössner suddenly appears right within the middle. The interior of the beam reduces in numerous bubbles and is right just exploded. Smallest bubbles bulge out in a moment next to the huge virtual balloons. Wössner is a graduate engineer and director of the department at the supercomputer centre in Stuttgart (HLRS). He moves around one of the balloons at least he seems to appear so. With the help of 3-D spectacles which Wössner carries in the so-called cave, the small beam not only works monstrously, it shines now also directly in order to fly right through the middle of the space.

The "Cave" – an abbreviation for Cave Automatic Virtual Environment renders possible what is otherwise only in children's dream. People appear to diminish to miniature size and can look at things in a space which is otherwise almost invisible to human eyes and look at striking water drops as for example or in

expanding injected jet in the ignition chamber of a motor. It is a computer of which there are only three samples in Germany: a machine with its capacity can calculate everything which people want to and that too in the shortest time. For this the computer consists of many encased computers connected together with one another. In total more than 185000 processor cores share the computing assignments. It is hardly conceivable that this supercomputer dubbed as 'Hazel Hen' can perform 7.4 milliard per second computing steps. Technical people speak of flops instead of computing steps – 7.4 peta (Peta: P-10¹⁵) flops are that is therefore the 'Hazel Hen' made a sure 17th position of worldwide fastest computer among the top 500 one conspicuously formulated. 8 milliard people must compute barely for two years uninterruptedly in order to achieve the results. With this concentrated computing power we can simulate the things which we cannot perform experimentally. 'These are for example long range climate evaluation or elementary cell processes' explains Michael M Resch, Manager of the supercomputer centre, Stuttgart.

Supercomputing: It is the kinglike discipline of modern computer on account of complexity of the set assignments. The 'Hazel Hen' in the

meantime since its installation in 2014 has executed 1 million simulations an anniversary of which was recently celebrated. Germany provides at its disposal the most efficient supercomputer infrastructure in Europe. The Gauß Centre for Supercomputing ties up the power of three supercomputer centres in Germany. These are the super computer centre, Stuttgart the Jülich Super Computer Centre (JSC) and the Leibniz Computing Centre at Garching in Munich (LRZ).

These three supercomputers together provide a computing performance of more than 20 peta flops which are 20 billiard computing operations per second. For the work with these

computers regarding the computation time of industry and research consequently perhaps also universities must be applied for in advance.

The example shows: Without real research superstructure today it won't work even with supercomputer. While that is so, highest earthly things stand in the Cave a movable simulator as for example can be in few minutes installed in the Cave. Today come 1000 virtual crash tested in view of their exact computability and while real crashes are much costly.

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Announcement

**ISEC's Forthcoming Seminar on
PRESERVATION AND SUSTENANCE OF BIODIVERSITY
In collaboration with BITM, Kolkata
Venue : BITM, Kolkata-700 019
on March 9, 2019 (Saturday) from 11.00 am to 4.00 pm**

Programme

Inaugural Session 11.30 am — 12.00 Noon

Inaugural speech Prof. Anil Kumar Ghosh, President, ISEC
Welcome Address Shri V S Ramachandran, Director, BITM, Kolkata

Technical Session I (12.00 Noon — 12.45 pm)

Chairperson : Dr. Bandana Barman, Kalyani Govt. Engineering College and Council Member, ISEC
Speaker : Dr. Saswati Sen, State Director, WWF-India, WBSO on
"Gangetic Dolphin Conservation in West Bengal"
(Tea break : 15 Minutes)

Technical Session II (1.00 pm — 1.45 pm)

Chairperson : Prof. Anil Kumar Ghosh, President, ISEC
Speaker : Dr. Asoke Kanti Sanyal, Former Director,
Zoological Society of India & Chairman, Biodiversity Board,
Govt. of West Bengal on "Biodiversity Conservation and Sustainable Livelihood in India"
(Lunch-break : 1.45 pm — 2.45 pm)

Technical Session III (2.45 pm — 3.30 pm)

Chairperson : Dr. Bijan Kumar Saha, Former Senior Deputy Director General, Geological Survey of India
Speaker : Prof. Dr. Sugata Hazra, Director, School of Oceanographic Studies, Jadavpur University,
Kolkata on "Sustainability of the Delta and It's Biodiversity"
3.30 pm — 3.50 pm General Discussion on Preservation and Sustenance of Biodiversity
3.50 pm — 4.00 pm Vote of Thanks by Prof. Santanu Das, Secretary, ISEC