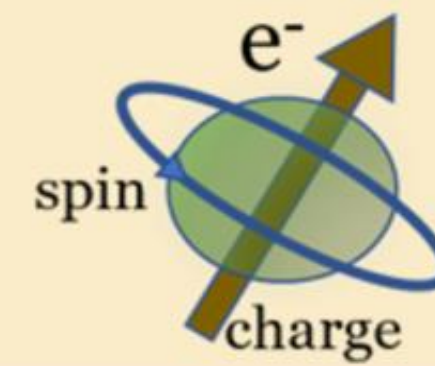




# W2S Seminar

(Webinar series on Spintronics)



We are going to celebrate the 100<sup>th</sup> W2S Seminar (webinar series on spintronics).

Eminent speakers from about 20 countries have given lectures, and W2S has about 700 registered participants.

We are pleased to invite you to attend the 100<sup>th</sup> lecture of W2S (webinar series on spintronics)

**Speaker: Prof. Dr. Stuart S P Parkin**

**Title:**

**Beyond charge currents: spin and ion currents for future data storage and computing technologies**

Prof. Stuart S. P. Parkin is an IBM Fellow (IBM's highest technical honor) and well known for his work on the giant magneto-resistance (GMR) effect. Parkin integrated the GMR effect into devices that revolutionized the field of non-volatile information technology by allowing a 1000-fold increase in hard disk data density. Most recently, he has proposed an approach to build a solid-state non-volatile memory device using the current controlled motion of magnetic domain walls in magnetic nano-wires- "Racetrack Memory". He is the recipient of numerous honours such as:

- American Physical Society's International New Materials Prize (1994)
- Europhysics Prize (1997)
- Innovator of the Year by R&D Magazine (2001)
- IUPAP magnetism prize (2009), and Neel Medal
- Von Hippel award (2012)
- Swan Medal (2013)
- Millennium Technology Award (2014)
- King Faisal Prize for Science (2021)

He has published >660 papers, has >122 issued patents, and has given >800 invited talks around the world. He was named a "Highly Cited Researcher" by Clarivate for the years 2018-2022 and has an h-index of 126.

- 4.00 pm **Welcome by :** Dr. Subhankar Bedanta (Convener W2S seminar, NISER)
- 4.05 pm **Address by :** Prof. Bedangadas Mohanty (Professor in Physics, NISER)
- 4.10 pm **Address by :** Prof. Sudhakar Panda (Director, NISER)
- 4.15 pm **Lecture by :** Prof. Dr. Stuart S P Parkin



**Prof. Dr. Stuart S P Parkin**  
Max Planck Institute for  
Microstructure Physics, Halle (Saale),  
Germany

**Date: 17<sup>th</sup> Nov 2022;**  
**4:00 pm (IST) i.e.**  
**11:30 am (CET)**

Google meet link: [meet.google.com/xbq-nehk-kec](https://meet.google.com/xbq-nehk-kec)

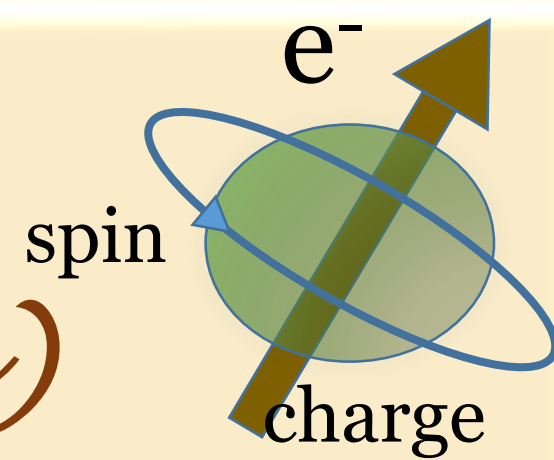
YouTube link: <https://youtu.be/tnt7Bn4NUqM>

For more information on W2S seminars please visit : <https://www.niser.ac.in/w2s-seminar/index.php>



# W2S Seminar

## (Webinar series on Spintronics)



**Beyond charge currents: spin and ion currents for future data storage and computing technologies**

**Speaker**

**Prof. Dr. Stuart S. P. Parkin**

**Max Planck Institute for Microstructure  
Physics, Halle (Saale), Germany**

**Date and Time:**

**17/11/2022**

**4:00 pm IST**

**i.e. 11:30 am CET**

### **Abstract**

The era of computing technologies based on charge currents is coming to an end after more than forty years of exponential increases in computing power and data storage that have been largely based on shrinking devices in two dimensions. A new era of “Beyond charge!” will evolve over the next decade that will likely be based on several new concepts. Firstly, devices whose innate properties are derived not from the electron’s charge but from spin currents and from ion currents. In some cases new functionality will arise that can extend charge based devices but in other case fundamentally new computing and data storage paradigms will evolve. Secondly, devices will inevitably become three-dimensional: novel means of constructing devices, both from bottom-up and top-down, will become increasingly important. Thirdly, bio-inspired devices that may mimic the extremely energy efficient computation systems in the biological world are compelling. In this talk I will focus on spintronics, namely, spin current based phenomena and devices and discuss the past, present and future of spintronic technologies.

To attend the lecture, please visit:

Google meet link: [meet.google.com/xbq-nehk-kec](https://meet.google.com/xbq-nehk-kec)

YouTube link: <https://youtu.be/tnt7Bn4NUqM>

Contact:

Dr. Subhankar Bedanta (Convenor W2S)

Email: [w2s-spintronics@niser.ac.in](mailto:w2s-spintronics@niser.ac.in)

For more information on W2S seminars please visit : <https://www.niser.ac.in/w2s-seminar/>