

President John Sneyd opened the meeting at 9:55 am with 45 members in attendance. He welcomed Dr. Zhongwei Chen and Dr. Chen's wife, Dr. Iaping Yu. He also welcomed guests: Martin Bosch, Scott Teasell, Elmer Warkinten, and Jay Gold.

President John mentioned that two weeks ago speaker Doug Larson gave a copy of his book to all who were present. If you didn't get a copy, see Soren Sondergaard to get one. Anybody else who would like extra copies, will have to pay \$10 for a copy.

John then asked all the members of the Speakers' Committee who were present to gather together to be recognized: Julian Sale, Warren Gregg, Kerry Gennings, and John Sneyd. Also on the Committee but not present today are David Moller and Gunter Thase. These are the members who normally meet three times a year to select and schedule our speakers. Once the speakers are identified the Speakers' Committee member assigned then contacts and solicits the speaker to come to present to us.

Activities – Ken Marchant

- The Annual Luncheon is coming up June 8th and your payment (\$22) is needed very soon and the cut-off date for payment will be by the next membership meeting; The start time for that Membership meeting will be moved a half hour forward to start with coffee at 9:00, AGM at 9:30, Speaker at 10:00 and luncheon at 11:30 am.

Warren Gregg

- the other event quickly approaching is the Drayton Theatre event – *Beautiful: "The Carole King Story"* on Saturday, May 20th. We've sold more tickets than were originally ordered.

Nominations Committee – Julian Sale & Frank Webster

- A complete slate of members standing for nomination to the Board of Directors and the positions they indicate they will stand for is:

President	Bob Berry
Vice-President	Warren Gregg
Past-President	John Sneyd
Secretary	Kerry Gennings
Treasurer	David Moller
Membership Committee Chair	Martin Alderwick
Speakers' Committee Chair	Doug Davidson
Activities Committee Chair	Ken Marchant
House Committee Chair	Len Bickerton
Communications Cmte Chair	Ritchie Zelk
Member-at-Large	Ron Heipel

This is the last call for nominations.

Coffee meeting: Next week - Thursday, May 18th, meet for Coffee at the Boathouse at 9:30 am.

Kerry Gennings was called upon to introduce today's guest speaker.

Bio

Dr. Zhongwei Chen is Canada Research Chair (CRC-Tier 1) Professor in Advanced Materials for Clean Energy at the University of Waterloo, Fellow of the Royal Society of Canada, Fellow of the Canadian Academy of Engineering, Director of Waterloo Centre for Electrochemical Energy (WCEE), Associate Editor of ACS Applied Materials & Interfaces (ACS-AMI), and Vice President of International Academy of Electrochemical Energy Science (IAOEEES). His research interests are in the development of advanced energy materials and electrodes for fuel cells, metal-air batteries, and lithium-ion batteries. He has published 3 book, 11 book chapters and more than 400 peer reviewed journal articles with over 43,000 citations with a H-index of 114. He is also listed as inventor over 60 US/international patents, with several licensed to companies internationally. He was the recipient of the 2016 E.W.R Steacie Memorial Fellowship, the member of the Royal Society of Canada's College of New Scholars, Artists and Scientists in 2016, the fellow of the Canadian Academy of Engineering in 2017, the Rutherford memorial medal from The Royal Society of Canada in 2017, which followed upon several other prestigious honours, including the Ontario Early Researcher Award, an NSERC Discovery Supplement Award, the Distinguished Performance and Research Award. Dr. Chen was ranked as the Global Highly Cited Researchers by Clarivate Analytics in 2018-2022. He was elected as Fellow of the Royal Society of Canada in 2019.

Presentation

The concept of sustainability, defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs”.

Dr. Zhongwei Chen - How to Make Batteries More Sustainable

Dr. Chen provided slides to demonstrate his research. He covered the following points:

- Showed members of Waterloo Centre for Electrochemical Energy
- Demonstrated Changes in CO₂, Temperature, Changes Sea Ice volume
- Greenhouse gas increases and Global warming
- Where is the CO₂ coming From - US Greenhouse emissions
- The Future Renewable energy
- The Problems - how do we store the energy
- Solution: Battery Storage
- Electrification - in 12 years we are expected to reduce gas emissions by 79%
- For vehicles - 50% of the cost of a vehicle is the battery
- status of existing Li-ion batteries
- Lithium-ion battery production in 2021
- Supply chain of Lithium-ion battery
- Challenges of Lithium-ion batteries
- shortage of Cobalt and shortage of Lithium
- Our sustainable solutions – need to develop cobalt-free material
- Methods of lowering the cost
- Future batteries will be sodium-ion batteries which are much cheaper or aqueous-zinc batteries or metal-air batteries
- The University of Waterloo has already built an E-car

John Sneyd thanked Dr. Chen and gave him a token of the Club's appreciation.

Next Meeting: May 25th with Guelph Police Chief discussing modern policing services.
Joining him will be Scott Tracy, Public Relations Officer.

Adjournment @11:02 am

Recording Secretary: Kerry Gennings