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Clean energy generation using fuel cells

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With the increasing effect of climate change on our environment, there is a demand for clean energy which does not emit carbon dioxide. One solution is the use of gaseous hydrogen powered fuel cells to generate electricity with water as the only product. The future of our universe depends on educating teachers and students to be more proactive with clean energy. A combination of free on-line webinars and face-to-face work on lab assignments for high school teachers and students were offered. The sessions covered the topics like global warming; clean energy sources; hydrogen as a fuel and an energy carrier; fundamentals of electrochemistry; electricity generation using fuel cells; fuel cell construction; hydrogen properties, storage, production and hydrogen infrastructure. During the lab sessions, the participants did hands on experiments associated with fuel cell construction and use for electricity generation; measuring the amount of hydrogen generated and parameters of electricity generated and solar electrolysis of water. As part of this educational experience, the high school teachers were helped with incorporating the materials into their classrooms.

Biography

A V Bailey PhD and D.Sc., (Chemistry) is a Principal Lecturer in the School of Chemistry and Materials Science of RIT, USA actively teaching undergraduate courses ranging from General & Analytical Chemistry through 'Clean energy" courses including three online courses, which she designed. She holds forty patents and have authored over 80 scientific publications, including four books. As a member of clean energy team, she developed and taught a new lecture and lab courses clean energy: hydrogen/fuel cells based on the written textbooks. She has advised undergraduate students doing research in the field of polymer membranes for fuel cells. As a PI of five exelon constellation company grants education program about electricity generation using fuel cells 2015 -2019, she conducts training sessions to NY State High School Teachers. She was nominated for the outstanding teaching award for RIT Non-Tenure-Track Faculty and for the Provost's Innovative Teaching with Technology Award.

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