Title: Nuclear Power and the Search for Carbon Free Energy
Presenter: Zeinab Arafa, Irvine Valley College
Mentor: Emily Liu

Nuclear power is often associated with political and environmental issues. The most recent nuclear accident that has spurred public attention was the 2011 accident in Fukushima, Japan. The accident was caused by the tsunami that disabled the cooling system in the reactor causing the explosion of the power plant. There are various debates on the topic of nuclear power plants and energy. However, a larger threat to the environment and our health is global warming (Headrick). There are solutions implemented in the United States to mitigate the issue of global warming, by producing carbon free energy sources. The most efficient source of energy is nuclear energy, because it does not produce any carbon dioxide or greenhouse gases (Karl Grandin). This research focuses primarily on nuclear energy that is conducted through nuclear reactors, specifically the Traveling Wave Reactor. The Traveling Wave Reactor forms a wave of reactions in order to produce the electricity and will be safe by "Controlling location, speed and shape of the burn front…to reduce risk of temperature and irradiation damage" (US Fed News). The explosions that occurred in the past were due to an overheated system, which the Traveling Wave Reactor will not have (Nicola De Blasio). This reactor will be an effective solution to combat global warming in a faster way than the other small scale solutions that have been proposed, because it produces an abundant source of fuel. This study will examine how the Traveling Wave reactor functions and the international perspectives on nuclear energy.

Works Cited

Headrick, Daniel R. "Climate Change: Debate and Reality." International Review of Environmental History, vol. 5, no. 1, 2019, pp. 43-60. ProQuest, https://ezproxy.ivc.edu/login?url=https://search-proquest-com.ezproxy.ivc.edu/docview/2229615871?accountid=39837.

Grandin, Karl, Peter Jagers, and Sven Kullander. "Nuclear Energy." Ambio, vol. 39, 2010, pp. 26-30. ProQuest, https://ezproxy.ivc.edu/login?url=https://search-proquest-com.ezproxy.ivc.edu/docview/865215191?accountid=39837.

De Blasio, Nicola, and Richard Nephew. "RENEWING NUCLEAR POWER AND TECHNOLOGY." Geopolitics, History and International Relations, vol. 10, no. 1, 2018, pp. 119-147. ProQuest, https://ezproxy.ivc.edu/login?url=https://search.proquest.com/docview/2065306471?accountid=39837

US Patent Issued to TerraPower on Jan. 27 for "Traveling Wave Nuclear Fission Reactor, Fuel Assembly, and Method of Controlling Burnup Therein" (California, Washington Inventors)." US Fed News Service, Including US State News, Jan 27, 2015. ProQuest, https://ezproxy.ivc.edu/login?url=https://search-proquest-com.ezproxy.ivc.edu/docview/1648381960?accountid=39837.