Contribution ID: **300** Contribution code: **S1 Physics Innovation** Type: **Poster Presentation**

Electrolyte Drink Analysis by Electronic Tongue Using Carbon Nanotube Paste Electrodes

Electrolyte drink becomes very popular nowadays that drinking aid in rehydration which mostly contain water, sugar, and electrolytes (Na, K, Mg, Ca ions). In this work, several electrolyte drinks including M sport, M-plus, Sponsor, Sponsor citrus, Gatorade were analyzed by electronic tongue comparing to mineral and tap water. Non-specified electrode array used in electronic tongue was fabricated by mixing carbon nanotube with copper oxide or several types of metal-phthalocyanine (MPc) including MnPc, FePc, CoPc and ZnPc. The electronic tongue system was developed by using automatic electrochemical measurement setup with rotating eight beaker tray together with electrode holder slider in up and down position. This system was controlled by Arduino with developed python protocol. The cyclic voltammetry measurement indicated an ion current flow between electrodes with peaks in some cases. These cyclic graphs were converted to the specific line graphs for further analysis. Principle component analysis was used to classify the signal into several distingue groups. It was found that with the first two principal components, the mineral water and tap water can be totally separate from the other electrolyte drinks with total variation of about 77%.

Author: Dr OSOTCHAN, Tanakorn (Asst Prof)

Co-authors: Mr HYUN SUH, Suk; Mr JITYEN, Arthit; Dr WARITANANT, Tanant; Dr WATTANAVICHEAN, Nungnit

Presenter: Dr OSOTCHAN, Tanakorn (Asst Prof)

Session Classification: Poster: S1 Physics innovation