SNA 40th Annual Meeting - Student Presentation Award

Name of Candidate: Elizabeth Lin

Award: Best Student Platform Presentation (Masters)

University: Yale University / Environmental Health Sciences

Presentation: A wearable polydimethylsiloxane-based passive air pollutant sampling dev...

Presentation Type: Platform **Final ID:** 564

Session: Advances in Passive Sampling Across Environmental Compartments - Part ...

Scientific Content and Structure of Presentation

General quality of the research, including aspects such as: Clarity of objectives; Appropriateness of methodology and clarify of explanation of methodology; Presentation and discussion of results; Conclusions;

For platform: Summary and good understanding of the subject presented

Mark 0 - 10 Pts _____

Oral Delivery (A or B)

A. Platform: Indications of good preparation including timing, clarity of speech, indication of enthusiasm for subject and ability to hold interest of audience

B. Poster: Indications of good preparation, clarity of speech, indication of enthusiasm for subject and/or ability to engage poster attendees

Mark 0 - 20 Pts _____

Visual Aids (Slides or Poster Layout, etc.)

Comment on: Appropriateness; effectiveness in reinforcing presentation; use of progressive disclosure etc. Overall layout and clarity

Mark 0 - 20 Pts _____

Defense of Presentation

Comment on: Clarity of answers to questions, ability to demonstrate knowledge of the project work by responding to the questions (by the audience or by the judge during the poster viewing)

Mark 0 - 10 Pts _____

SUMMED TOTAL SCORE, Maximum 100 Pts _____

COMMENTS:(e.g., suggested areas of improvement, most impressive aspects, etc.)

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Reviewer: Charles Wong [168382] **Date**

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On the day of judging, please enter your scores online at meetings.setac.org from your own computer or from those set up in the registration area, or return this form to Laura Swanson at the registration desk. THANK YOU!

ABSTRACT: Evaluation of cumulative exposure to air pollutant mixtures has been challenged by traditional measurement techniques to the weight, limited battery life and cost of these monitoring devices. Wearable passive air pollutant monitors have emerged as a tool for assessing personal exposure to environmental chemicals. These monitors concentrate airborne pollutants onto a substrate which can subsequently be analysed off-line for a broad range of compounds using mass spectrometry (MS). Longitudinal exposure assessment in vulnerable populations is facilitated by the lightweight, wearable form factor of these monitors. The low cost of this sampling technique further enables deployment across large populations, increasing the quantity of environmental data available for evaluating environmental risk factors for disease. We have applied a polydimethylsiloxane (PDMS) sorptive extraction technique to passively concentrate non-polar airborne compounds. Glass rods are coated with a thin PDMS film and mounted into a wristband (the Fresh Air Wristband). The wristband is worn by an individual for several hours to days depending on ambient levels. Sample analysis is performed using thermal desorption gas chromatograph high resolution MS (Thermo GC Q-Exactive). Using this sampling device, time-weighted personal exposure concentrations are evaluated for a broad range of semi-volatile organic compounds, including PAHs, PCBs, and PBDEs. Calibration constants for a selection of analytes from these chemical groups were estimated from linear temperature programmed retention indices measured using a pure PDMS stationary phase GC column. This calibration approach facilitated quantification of analytes identified through nontargeted analysis. We have used the Fresh Air wristband for personal exposure assessment in several large epidemiologic studies based in the U.S., Canada, South Africa, and China. These deployments have enabled characterisation of unique exposure profiles which is a novel advancement towards identifying disease risk factors.?