Abstract Submitted
for the SES20 Meeting of
The American Physical Society

**Development of Multisensory Gas Chromatography Experimental Apparatus for Scent Analysis**[1] ALEXANDRA DRIEHAUS, VLADIMIR DOBROKHOTOV, IVAN NOVIKOV, Western Kentucky University — In this presentation we discuss the development of an experimental multisensory gas chromatography (MGC) apparatus in order to analyze chemicals to provide a verbal description of the scent. Scents are categorized into families, determined by common verbal descriptions. For example, notes of lemon and orange correspond to a citrus scent, in the citrus family, whereas notes of cedar and oak correspond to a woody scent, in the woody family. In "The Atlas of Odor Character Profiles" (1985), Andrew Dravnieks released a collection of the applicability of a number of verbal descriptors for various chemicals. The scent descriptor applicability dictates each chemical's family placement. Analyzing chemicals with known verbal descriptors using an MGC-based apparatus quantifies their scents providing a chromatogram for each test odor. A Convolutional Neural Network is used to build corresponding function between a set of verbal descriptors and a set of collected chromatograms. This project is funded by the KY NSF EPSCoR URE program.

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Date submitted: 19 Oct 2020                    Electronic form version 1.4