CWSF 2012 - Charlottetown, Prince Edward Island

Jennifer Csele

A Novel Cold Cathode Source For Determining Lead Contamination

Challenge: Innovation
Category: Intermediate
Region: Niagara
City: Welland, ON
School: Notre Dame College School

Abstract: A novel hollow cathode lamp, operating by glow discharge, was constructed where the sample is the cathode. Using Radio-Frequency and DC excitation, non-conducting samples can be quickly and effectively tested for lead contamination. Using lead contaminated soil and statistical analysis, a logarithmic relationship was found between lead intensity and concentration. The lamp can accurately determine lead concentration in soil samples and likely in plastics.

Biography

Jennifer Csele currently resides in Welland, Ontario, located in the heart of the Niagara Region. She is sixteen years old and presently in grade ten at Notre Dame College School in the academic stream. The career path which she would like to pursue would be to become an engineer. She has recently presented her project at the 2012 Niagara Regional Science and Engineering Fair and has competed in both the 2010 and 2011 Canada-Wide National Science Fairs. The inspiration for this year's project was to try and create a way to easily and quickly test for lead contamination as it is a major environmental concern. Jennifer plans to continue her project next year and create a commercially viable instrument for testing soil and plastic for lead contamination.

Awards	Value
S.M. Blair Family Foundation Award - Intermediate Sponsor: S.M. Blair Family Foundation	$750
Excellence Award - Intermediate - Gold Medal Sponsor: Youth Science Canada	$1 500
Western University Scholarship Gold Medallist - $4000 Entrance Scholarship Sponsor: Western University	$4 000
Total	$6 250