

State of California  
AIR RESOURCES BOARD

Resolution 06-55

December 7, 2006

Agenda Item No.: 06-11-2

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705;

WHEREAS, a proposal Number 81, entitled "Assessment of an Advanced Method for Measurement of the Solid Carbonaceous (Soot) Component of Mobile Source Particulate Matter," has been submitted by Artium Technologies, Inc., in response to the 2006 Innovative Clean Air Technologies (ICAT) Program solicitation;

WHEREAS, the proposal has been independently reviewed for technical and business merit by highly qualified individuals; and

WHEREAS, the Research Division staff and the Executive Officer and Deputy Executive Officers have reviewed and recommend for funding:

Proposal Number 81, entitled "Assessment of an Advanced Method for Measurement of the Solid Carbonaceous (Soot) Component of Mobile Source Particulate Matter," submitted by Artium Technologies, Inc., for a total amount not to exceed \$200,000.

NOW, THEREFORE BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703, hereby approves the following:

Proposal Number 81, entitled "Assessment of an Advanced Method for Measurement of the Solid Carbonaceous (Soot) Component of Mobile Source Particulate Matter," submitted by Artium Technologies, Inc., for a total amount not to exceed \$200,000.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and agreements for the efforts proposed herein, and as described in Attachment A, in an amount not to exceed \$200,000.

I hereby certify that the above is a true and correct copy of Resolution 06-55, as adopted by the Air Resources Board.

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Lori Andreoni, Clerk of the Board

## ATTACHMENT A

Innovative Clean Air Technologies (ICAT) Grant Proposal:

### **“Assessment of an Advanced Method for Measurement of the Solid Carbonaceous (Soot) Component of Mobile Source Particulate Matter”**

#### **Background**

Artium has developed a method for measuring soot (solid carbonaceous) emissions from motor vehicle exhaust in real time at low soot concentrations. The method, referred to as Laser-Induced Incandescence (LII), involves heating particles in the exhaust to their incandescence temperature using a laser, and then measuring the amount of light that is emitted. The amount of light emitted is related to the soot concentration.

#### **Objective**

The objective of the project will be to demonstrate the ability of the LII method to accurately measure soot emissions from motor vehicles in real time, and at low concentrations.

#### **Methods**

Extensive chassis dynamometer tests would first be conducted to evaluate the performance of the LII instrument. Following successful demonstration of the instrument on chassis dynamometer testing, the instrument would be demonstrated in extensive on-board on-road testing. All data relevant to evaluating the performance of the instrument would be recorded.

#### **Expected Results**

It is expected that the LII instrument will be demonstrated to be a feasible instrument for purposes of measuring real-time soot emissions from motor vehicles.

#### **Significance to the Board**

The instrument will allow the measurement of soot emissions from motor vehicles in a real-time basis, which would allow the ARB to collect more data on the PM emissions rates from motor vehicles. This additional data would enhance ARB's air quality modeling and enforcement programs.

**Applicant:** Artium Technologies, Inc.

**Project Period:** April 2007 to April 2009

**Principal Investigator:** William D. Bachalo

**ICAT Funding:** \$200,000

**Co-funding:** \$200,000

**Past Experience with This Principal Investigator:**

None.

**Prior ICAT Funding to 2006**

Year	2005	2004	2003
Funding	0	0	0

## BUDGET SUMMARY

Artium Technologies, Inc.

### “Assessment of an Advanced Method for Measurement of the Solid Carbonaceous (Soot) Component of Mobile Source Particulate Matter”

<b><u>Direct Costs and Benefits</u></b>	<b><u>ICAT</u></b>	<b><u>Total</u></b>
1. Labor	\$ 80,000	\$140,000
2. Employee Fringe Benefits	\$ 40,000	\$ 70,000
3. Subcontractors	\$ 0	\$ 0
4. Equipment	\$ 0	\$ 0
5. Travel and Subsistence	\$ 0	\$ 10,000
6. Materials and Supplies	\$ 80,000	\$ 95,000
7. Other Direct Costs	<u>\$ 0</u>	<u>\$ 5,000</u>
Total	\$200,000	\$320,000
 <b><u>Indirect Costs</u></b>		
1. Overhead	\$ 0	\$ 80,000
2. Other Indirect Costs	<u>\$ 0</u>	<u>\$ 0</u>
Total	<u>\$ 0</u>	<u>\$ 80,000</u>
<b>Total Project Costs</b>	<b>\$200,000</b>	<b>\$400,000</b>