Super-Resolution Optical Imaging of Biomass Chemical-Spatial Structure

Cooperative Research and Development Final Report

CRADA Number: CRD-10-410

NREL Technical Contact: Shi-You Ding

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CRADA Report
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June 2013

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Cooperative Research and Development Final Report

In accordance with Requirements set forth in Article XI.A(3) of the CRADA document, this document is the final CRADA report, including a list of Subject Inventions, to be forwarded to the Office of Science and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

CRADA Number: CRD-10-410

CRADA Title: Super-resolution Optical Imaging of Biomass Chemical-Spatial Structure

Parties to the Agreement: Colorado School of Mines

Joint Work Statement Funding Table showing DOE commitment:

<table>
<thead>
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<th>Estimated Costs</th>
<th>NREL Shared Resources</th>
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</tr>
<tr>
<td>TOTALS</td>
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</tr>
</tbody>
</table>

Abstract of CRADA work:

The overall objective for this project is to characterize and develop new methods to visualize the chemical spatial structure of biomass at varying stages of the biomass degradation processes in situ during the process.

Summary of Research Results:

A novel nonlinear imaging technology was developed and demonstrated. This is the first microscope capable of simultaneously imaging with single-element detection multiple focal spots and multiple multiphoton modalities. The resulting new methods of nonlinear visualization were reported in the following peer-reviewed publications:


The work was presented at an invitational presentation:

Subject Inventions Listing: n/a

Report Date: 4/4/2013  
Responsible Technical Contact at Alliance/NREL: Shi-You Ding

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