

SUBMISSION FORM
University System/Employee Intellectual Property Joint Participation
MUSP 407

This form is to be submitted with any Board of Regents item whereby a campus seeks the approval of an agreement with or arrangement regarding an employee pursuant to 20-25-109 MCA and Regents Policy 407.

When the submission concerns matters of trade secrets or confidential business information, or any other matter entitled to privacy under state or federal law (e.g., the federal statute known as Bayh/Dole) the submitting campus may request consideration of the submission, in whole or in part, in executive session.

The submitting campus should also provide the Commissioner a copy of the contract(s) that form the basis for the cooperative arrangement for which approval is sought. Submission of the contract does not indicate a conclusion that all or part of the contract is a public document and the question of whether it is in whole or in part protected from public disclosure will be evaluated on a case by case basis.

1. Summarize the nature of the intellectual property that was developed by the employee seeking approval. Indicate the sources of funding for the research that resulted in this invention.

The intellectual property (IP) developed by the employees is described in an MSU Research Collaboration and Technology Licensing Opportunity: Robust, Compact, Ultraspectral Imaging System (MSU Tech ID: BRJ-2014-AMUSI) and associated intellectual property disclosure and provisional patent filing. The IP is a concept and design for a hyperspectral imaging camera based on an array of individually tunable microcavities acting as spectral and spatial optical filters followed by an array of CMOS and/or CCD photodetectors for sensor output. The basis of the microcavities are high quality miniaturized curved mirrors formed by laser ablation on a transparent substrate which was a technique pioneered by Dr. Russell Barbour during his PhD research. The basic technique for constructions of individual cavities lies in the public domain. The IP considered here would cover the use of an array of these cavities for spectral imaging and the use of a liquid crystal or other electro-optic intracavity tuning mechanism.

There are no external sources of research funding that resulted in this invention; the invention occurred during the course of internal discussions and idea generation. After the filing of the provisional patent, the idea received support from the Office of Research and Economic Development through a MSU interior Catalyst grant. There are two external proposals currently pending on the technology. The first is a DoD Small Business Technology Transfer (STTR) proposal submitted in collaboration with Spectral Molecular Imaging Inc. of Beverly Hills, CA to investigate the technology for biomedical defense needs. The second is a proposal to the Montana Board of Research and Commercialization Technology to fund

Spectrum Lab to develop an in-house capability to create the curved mirror substrates for the hyperspectral imaging technology and other microcavity based sensor technologies.

2.

a. Name(s) of the university employee(s) involved.

- Dr. Russell Barbour
 - Co-inventor of intellectual property
 - Research Scientist – MSU Spectrum Lab
 - Owner of start-up company

b. Name(s) of business entity(ies) involved.

Advanced Microcavity Sensors, LLC, a new start-up based in Bozeman, MT

3. The university and employee(s) are seeking approval for (check as many as appropriate):

- a. The employee to be awarded equity interest in the business entity
- b. The employee to serve as a member of the board of directors or other governing board of the business entity
- c. The employee to accept employment from the business entity
- d. Other. Please explain.

4.

a. Summarize the nature of the relationship between the university and the business entity (e.g., the entity is licensing the intellectual property from the university, the entity is co-owning the intellectual property with the university).

Advanced Microcavity Sensors, LLC is a business entity specifically formed and wholly owned by Dr. Russell Barbour to option and license the IP from MSU for the expressed purpose of commercial development of the technology in all hyperspectral imaging technology areas. The business entity has completed a one year Option Agreement with MSU to license the IP. This confidential document is available upon request. Dr. Barbour will be seeking external funding to pursue commercial development of the technology and plans on exercising the option and negotiate a full technology license if external funding is secured.

b. The proposed duration of the agreement or arrangement.

The Option to License Agreement was executed this spring, and Advanced Microcavity Sensors will have the opportunity to seek an exclusive license from MSU by April, 2016.

c. The conditions under which the agreement may be terminated or dissolved.

The agreement shall terminate at the end of the Evaluation Period unless the option is exercised or declined by company, in which event the agreement will terminate at the end of the stipulated negotiation period or upon execution of a license agreement, whichever occurs first. Upon termination, company will be liable for patent prosecution fees incurred during the evaluation period. Such fees will be paid upon termination.

MSU shall have the right to terminate the agreement immediately, without the obligation to provide notice, if company files a claim, including in any way the assertion that any portion of the patent rights is invalid or unenforceable where the filing is by the company, a third party on behalf of the company, or a third party at the written urging of the company.

5. Explain specifically how the University System or the State of Montana will likely benefit from the agreement or arrangement.

- a. The IP is wholly owned by MSU and this agreement would lead to a fully negotiated license with annual fees and royalties that would generate significant revenue upon successful commercial development of the technology.
- b. The arrayed microcavity technology represents a robust, compact, and potentially low cost solution for hyperspectral imaging that would enable the technology to access new markets for hyperspectral imaging including biomedical and traditional Montana industries such as agriculture and mining. In the biomedical imaging market, low cost technology could be used for early detection of cancers including reducing the incidence of false positives in the diagnosis of skin cancers (of which Montana has a higher than average incidence) that lead to unnecessary and invasive biopsies.
- c. The microcavity technology represents a new technology area for MSU Spectrum Lab, which could lead to external federally funded grants and contracts to research application of the technology in different areas.
- d. Includes research opportunities for students

6. Summarize the financial terms of the agreement or arrangement. Include:

a. The value, nature and source of the University's contribution.

MSU Technology Transfer is pursuing patent prosecution to be filed by August 25, 2015. The University will front any accrued patent filing costs, which will be paid back by the company upon expiration of the option following the schedule set forth in the Option Agreement. This agreement, signed by Advanced Microcavity Sensors, LLC, commits the company to cover the attorney costs and initial filing fees.

b. The value and nature of the employee's contribution.

Dr. Russell Barbour has contributed personal capital to the company from which the associated option fees will be paid. As an employee of MSU, he will assist in the preparation and completion of the patent filing.

c. The anticipated revenue to be generated by the project and the time line for generating such revenue.

A license agreement is yet to be negotiated so projected revenue is hard to anticipate at this time.

d. The manner in which revenue and expenses will be shared by the parties.

The current Option Agreement will allow the company to negotiate a license which would include royalties, among other terms. The Option Agreement has no provision for royalties as an option holder is not permitted to conduct commercial sales of products or services containing the optioned technology. Any future royalty revenues will be shared by MSU and the inventors after payment of a development fee to MSU and collection of any unreimbursed patent costs. All expense information is detailed in the confidential agreement language.

e. The nature of each party's equity interest in the project. If none, so indicate.

Dr. Russell Barbour holds 100% equity in Advanced Microcavity Sensors, LLC.