

**PRC Ref. No.: CBBR 12/24 - Supply, Installation and Commissioning of
Microscopes for Materials Engineering and Biotechnology Applications
for the Biomaterials, Drug Delivery and Nanotechnology Unit,
Centre of Biomedical and Biomaterials Research**

Addendum No. 2 – Queries No. 1 from Prospective Bidders

A. Queries for Item No. 1 - Confocal Microscope for Biotech Applications

1. *What is your definition of ‘High Resolution’? It is mentioned 300 nm lateral and 800 nm axial, but this is even below the standard confocal resolution.*

Reply by UoM:

The objective is to visualise biological structures (cells and cell structures) at a high resolution from 3D samples.

The minimum spatial resolution specified in the Specifications and Compliance Sheet provided at **Section V – Schedule of Requirements** of the bidding documents is **at least** 300nm lateral and 800nm axial.

Bidders should specify in their Specifications and Compliance the spatial resolution of their proposed model(s) that would meet their standard confocal resolution.

2. *Are you looking for a point-scanner system and high frame rates like the 10 fps @ 512x512?*

If so, then you should note the difference between galvo-scanner and resonant scanner that we offer due to their different strengths and weaknesses, i.e., A Galvano-scanner can also achieve high frame rates like the 10 fps, but on costs of the FOV: A zoom of 10x or more is required to achieve this speed, resulting in a very small FOV. The resonant-scanner for our proposed model does not have that limitation and scan the full FOV with high speed. This is a big advantage for high-speed time-lapse imaging of living organism or even cells moving within the FOV.

Reply by UoM:

Bidders may propose:

Either: Galvano-scanner (high frame rate of 10 fps; small FOV); or
Resonant-scanner (higher fps; full FOV).

Bidders are required to give detailed specifications (as applicable) for their proposed model(s) in the **amended** Specifications and Compliance Sheet provided at Section V – Schedule of Requirements of the amended bidding documents for the following specifications:

- At page 55, for “Scan Head” – *Type to be specified.*

**PRC Ref. No.: CBBR 12/24 - Supply, Installation and Commissioning of
Microscopes for Materials Engineering and Biotechnology Applications
for the Biomaterials, Drug Delivery and Nanotechnology Unit,
Centre of Biomedical and Biomaterials Research**

Addendum No. 2 – Queries No. 1 from Prospective Bidders

3. *What is the required frame rate and at which resolution (e.g. 10 fps @ 512x512)? The tender only specify 'High-speed time-lapse acquisition'.*

Reply by UoM:

Please refer to clarifications provided for Query No. 2.

4. *Is a detector with fixed bandwidth by filter sets sufficient or do you need variable bandwidth (like the DUX-VB4)?*

Reply by UoM:

A detector with fixed bandwidth by filter sets will be sufficient.

Bidders may also propose a model with variable bandwidth.

5. *Should the photo-stimulation be performed simultaneously or sequentially?*

Reply by UoM:

Bidders should specify in the **amended** Specifications and Compliance Sheet whether any of the following **add-ons for future updates** would be available for their proposed models:

- (a) **Sequential** Photostimulation
- (b) Fluorescence lifetime imaging including fast FLIM
- (c) Piezoelectric Z (or XY)

However, bidders should not quote for these add-ons.

6. *Should the options (Photo-stimulation, FLIM, z-Piezo) be already included in the configuration or are they for future updates?*

Reply by UoM:

Please refer to clarifications provided for Query No.: 5

**PRC Ref. No.: CBBR 12/24 - Supply, Installation and Commissioning of
Microscopes for Materials Engineering and Biotechnology Applications
for the Biomaterials, Drug Delivery and Nanotechnology Unit,
Centre of Biomedical and Biomaterials Research**

Addendum No. 2 – Queries No. 1 from Prospective Bidders

B. Queries for Item No. 3 - AFM Confocal Raman Microscope for Materials Engineering Applications

7. *In situ/operando analysis under different atmospheres and variable temperatures are specified. Should an analytical cell be included in the offer?*

Reply by UoM:

One of the potential uses of the apparatus is imaging of live mammalian cells at 37⁰C and CO₂ atmosphere. Bidders to supply an analytical cell if it is required for this purpose and to specify in their **amended** Specifications and Compliance Sheet that the analytical cell is included in their offer.

8. *Listed objectives show the magnification, for confocal (Raman) microscopy the numerical aperture (NA) is of more critical importance for the spatial resolution power of the microscope.*
- (i) *Can alternative objectives with similar magnification and best-suited NA be offered?*

Reply by UoM:

Yes, bidders can propose models with best-suited NA.

- (ii) *40x, 50x and 60x are specified; seeing that you wish to measure in an atmospheric/temperature-controlled environment, we suggest to offer at least one of those objectives (typically the 50x) as long working distance objective? Can we factor this in the configuration?*

Reply by UoM:

Yes, please factor this into the configuration.

9. ***Raman Confocal Features: “ultra-fast” confocal imaging.***

- (i) *Are we correct in assuming this refers to ultra-fast confocal RAMAN imaging? Assuming this is correct, what would be the definition of ultra-fast?*

Reply by UoM:

It does refer to ultra-fast confocal RAMAN imaging. We would like to have integration times of a few milliseconds at most per spectrum.

**PRC Ref. No.: CBBR 12/24 - Supply, Installation and Commissioning of
Microscopes for Materials Engineering and Biotechnology Applications
for the Biomaterials, Drug Delivery and Nanotechnology Unit,
Centre of Biomedical and Biomaterials Research**

Addendum No. 2 – Queries No. 1 from Prospective Bidders

- (ii) ***Inverted Microscope Design:** In order to allow for most flexible optical sample access, we propose a microscope system architecture with an inverted beam path AND a full upright microscope, to allow for excitation from below OR above. Would such a solution be equally considered?*

Reply by UoM:

Both options would be equally considered.

- (iii) *Is an inverted microscope for materials research mandatory or can we quote an alternative?*

Reply by UoM:

Please refer to clarifications provided for Query 9 (ii).

10. *For the excitation wavelengths, it is stated Near UV, 532nm, 633nm OR near IR.*

- (i) *Which and how many lasers are expected to be included in the offer? NOTE: this will also impact on the type of detector.*
- (ii) *Are all the laser listed mandatory?*

Reply by UoM:

We need at least the 532 nm laser (with corresponding detector), but please also include pricing for the remaining excitation wavelengths as options.

11. ***AFM features:** Ultra-high topographic and lateral resolution <1nm. For Z-resolution this is well achievable, for lateral resolution this is tip-radius limited, typically even ultra-sharp tips are specified with 2 – 3nm.*

How would this level of resolution be evaluated/tested?

Reply by UoM:

A lateral resolution of 2-3 nm can be considered, if the Z-resolution is under 1 nm.

**PRC Ref. No.: CBBR 12/24 - Supply, Installation and Commissioning of
Microscopes for Materials Engineering and Biotechnology Applications
for the Biomaterials, Drug Delivery and Nanotechnology Unit,
Centre of Biomedical and Biomaterials Research**

Addendum No. 2 – Queries No. 1 from Prospective Bidders

C. Queries for Item No. 3 - Light Microscope for Biotech Applications

12. *The description looks like a simple optical microscope, is it?*

Reply by UoM:

Yes

13. Amendments to Bidding Documents

Prospective bidders are hereby informed that they should submit the **amended** Specifications and Compliance Sheet provided at **Section V - Schedule of Requirements** of the bidding documents.

The amendments are in red lettering at pages 56 and 57 for the following specifications for Item No. 1 - Confocal Microscope for Biotech Applications:

- (i) Detectors; and
- (ii) Add-ons for future updates.

14. Extension of Closing Date

Prospective bidders are hereby informed that:

- (i) The closing date for the submission of bids has been extended to **Monday 29 April 2024 by 13:30 hrs (local time)** at the latest; and
- (ii) Bids will be opened by the University of Mauritius at the Council and Senate Room, 7th Floor, Tower Block, New Academic Complex, University of Mauritius on **Monday 29 April 2024 at 14.00 hrs (local time)**. Bidders or their representatives may attend the Bid Opening if they choose to do so.

To this effect, Addendum No. 1 dated 17.04.24 was sent to all prospective bidders.

IC/DB/ABL/CSNM/

18.04.24