Purchase Contract

 (hereafter the “**Contract”**)

1. **CONTRACTUAL PARTIES**
	1. **Fyzikální ústav AV ČR, v. v. i.** (Institute of Physics of the Czech Academy of Sciences)**,**

with registered offices at: Na Slovance 1999/2, 182 00 Praha 8, Czech Republic,

represented by: RNDr. Michael Prouza, Ph.D., Director,

registered in the Register of public research institutions of the Ministry of Education, Youth and Sports of the Czech Republic.

ID No.: 68378271

Bank: xxxxxxxxxxxxxxxxxxxxxxxx

Account No.: xxxxxxxxxxxxxxxxxxxxxxxx

(hereinafter referred to as the “**Buyer**”)

and

* 1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,**

with registered offices at: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

represented by: \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_,

registered in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ID No.: \_\_\_\_\_\_\_\_\_\_\_\_

Tax ID No.: \_\_\_\_\_\_\_\_\_\_\_\_

Bank: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Account No.: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (TO BE FILLED IN BY THE BIDDER)

(hereinafter referred to as the “**Seller**”)

(the Buyer and the Seller are hereinafter jointly referred to as the “**Parties**” and each of them individually as a “**Party**”).

1. **FUNDAMENTAL PROVISIONS**
	1. The Buyer is a *Partner with a financial contribution* in the project "**Ferroic Multifunctionalities“ (FerrMion)** under the *Operational Programme Jan Amos Komenský* within the framework of EU funds, project registration number **CZ.02.01.01/00/22\_008/0004591** (hereinafter referred to as the “**Project**”). The subject of performance under this Contract is intended for the Project and mainly financed from the support provided for its implementation.
	2. The Seller has been selected as the winner of a public procurement procedure announced by the Buyer in accordance with Act No. 134/2016 Coll., on Public Procurement, as amended (hereinafter the **“Act”**), for the public contract with the title **“Ultra-sensitive Raman system with optical continuous flow helium cryostat system”** (hereinafter the “**Procurement Procedure**”).
	3. The documentation necessary for the implementation of the subject of performance hereof consist of
		1. **Technical specifications** of the subject of performance hereof attached as **Annex No. 1** hereto**.**
		2. The Seller´s bid submitted within the Procurement Procedure in its parts which describe the subject of performance in technical detail (hereinafter the “**Seller’s Bid**”); the Sellers’s Bid forms **Annex No. 2** to this Contract and is an integral part hereof.

In the event of a conflict between the Contract and its Annex or between the Contract’s Annexes, the technical specification / requirement of the higher level / quality shall prevail.

* 1. The Seller acknowledges that it is essential for the Buyer that the Seller delivers and handovers the subject of performance within the specified time and in the specified quality as stated in Annexes No. 1 and 2 of this Contract (including invoicing). If the Seller fails to comply with the contractual requirements, the Buyer may incur damages.
1. **SUBJECT-MATTER OF THE CONTRACT**
	1. The subject of this Contract is the Seller’s obligation to deliver and transfer into the Buyer’s ownership:

**An ultra-sensitive Raman system with optical continuous flow helium cryostat system s**pecified in detail in Annexes No. 1 and No. 2 hereto

(hereinafter the **“Equipment”**)

and the Buyer's obligation to accept the Equipment and to pay the Seller the purchase price as defined below.

* 1. The following activities are an integral part of the performance to be provided by the Seller:
		1. Transport of the Equipment incl. all accessories specified in Annexes No. 1 and 2 hereto to the place of performance, un-packaging and control thereof;
		2. Installation of the Equipment and all components necessary to operate the Equipment including connection to installation infrastructure at the place of performance;
		3. Verification of the functionality of the Equipment and compliance with technical parameters according to Annexes No. 1 and 2 after installation; the functionality of the Equipment is verified by carrying out the Acceptance Tests (hereinafter the “**Acceptance Tests**”) that shall include at least:
			+ Calibrate spectrometer using the Argon/Mercury calibration lamp,
			+ Make a z-scan of a thin oxide film on an oxide substrate with low frequency Raman modes *[test z-scan and low frequency abilities],*
			+ Make SHG map of domains of a sample provided by the Buyer [*test SHG and XY mapping of the sample],*
			+ Measure angular dependent polarization of sample provided by the Buyer [*test motorized polarization measurements],*
			+ Measure Raman spectroscopy of sample provided by the Buyer using side-illumination geometry and inverted confocal microscopy extension *[test side-illumination and inverted geometries],*
			+ *Measure confocal Raman imaging guided by surface topography [test topographic Raman imaging],*
			+ Measure Raman spectrum of sample provided by the Buyer at 4K and 500K *[Verify the resolution of the spectrometer at 4K, test low temperature stage].*
		4. Delivery of detailed instructions and manuals for the Equipment operation and maintenance in English or Czech, service documentation, list of spare parts (including current prices), electrical connection schemes and CE certification documents of the Equipment (if applicable) in Czech or English, in electronic form (MS Office or PDF format);
		5. Training of operators at the place of performance, at least 4 hours of training of 3 operators;
		6. Free-of-charge warranty Equipment service during the warranty period;
		7. Free-of-charge provision of technical support in the form of consultations (at least telephone and email support in Czech or English on working days), e.g. regarding fine tuning of the Equipment. The Seller shall provide the Buyer with this support during the warranty period.
	2. The Seller shall be liable for the Equipment and related services to be in full compliance with this Contract, its Annexes and all valid legal regulation, technical and quality standards and shall also be liable that the Buyer will be able to use the Equipment for the defined purpose. In case of any conflict between applicable standards, it is understood that the stricter standard or its part shall always apply.
	3. The Equipment and all its parts and accessories must be brand new and unused.
1. **PERFORMANCE PERIOD**
	1. The Seller undertakes to deliver and hand over the Equipment to the Buyer within **6 months** of the conclusion of the Contract.
	2. The Seller is obliged to notify the Buyer of the date of delivery and installation of the Equipment at least 10 working days in advance. This term is subject to the consent of the Buyer.
	3. In the event that, due to obstacles on the part of the Buyer, it is not possible to deliver and hand over the Equipment on the agreed date or within the period according to Section 4.1, the Seller is not entitled to claim payment of any additional costs against the Buyer.
2. **PURCHASE PRICE, INVOICING, PAYMENTS**
	1. The purchase price is based on the Seller’s submitted bid and amounts to **\_\_\_\_\_\_\_\_ EUR** (in words: \_\_\_\_\_\_\_\_\_\_\_) (TO BE FILLED IN BY THE BIDDER)excluding VAT for the Equipment (hereinafter the **“Price”**).
	2. VAT shall be settled in accordance with the valid Czech regulation.
	3. The Price includes any and all performance provided by the Seller in connection with meeting the Buyer’s requirements for the proper and complete delivery of the Equipment hereunder, as well as all costs that the Seller may incur in connection with the delivery, installation and testing of the Equipment upon handover.
	4. The Parties agreed that the Price shall be invoiced after the handover protocol in accordance with Section 10.4 (hereinafter the “**Handover Protocol**”) will have been signed; in the case the Equipment will be handed over with defects, this part of the Price shall be invoiced after removal of these defects.
	5. The invoice issued by the Seller must contain all information required by the applicable laws of the Czech Republic and, in addition, they must
		1. contain registration number of this Contract, which the Buyer shall communicate to the Seller based on Seller’s request before the issuance of the first invoice,
		2. state that the Equipment is supplied for the purposes of the project ""**Ferroic Multifunctionalities"** with the registration number **CZ.02.01.01/00/22\_008/0004591**,
		3. comply with the double taxation agreements, if applicable.
	6. The Buyer prefers electronic invoicing, with the invoices being delivered to efaktury@fzu.cz.
	7. Invoices shall be payable within thirty (30) days of the date of their delivery to the above address. Payment of the invoiced amount means the date of its remittance to the Seller’s account.
	8. If an invoice is not issued in conformity with the payment terms stipulated by the Contract or if it does not comply with the requirements stipulated by law, the Buyer shall be entitled to return the invoice to the Seller as incomplete, or incorrectly issued, for correction or issue of a new invoice, as appropriate, within five (5) business days of the date of its delivery to the Buyer. In such a case, the Buyer shall not be in delay with the payment of the Price or part thereof and the Seller shall issue a corrected invoice with a new and identical maturity period commencing on the date of delivery of the corrected or newly issued invoice to the Buyer.
	9. The Buyer shall be entitled to unilaterally set off any of their payments against any receivables claimed by the Seller due to:
		1. damages caused by the Seller,
		2. contractual penalties.
	10. The Seller shall not be entitled to set off any of his receivables against any part of the Buyer’s receivable hereunder.
3. **OWNERSHIP TITLE**

The ownership right to the Equipment and at the same time the associated risk of damage shall pass to the Buyer upon proper handover and acceptance of the Equipment according to Section 10.3, i.e. by drawing up the Handover Protocol and its signature by an authorized representative of the Buyer.

1. **PLACE OF** **PERFORMANCE**

The place of performance, i.e. the place of delivery, installation and handover of the Equipment, shall be the room No. 0.15 in the SOLID21 building of Fyzikální ústav AV ČR, v.v.i., Pod Vodárenskou věží 2531/3, 182 00 Praha 8, Czech Republic.

1. **NOTIFICATION OF DELIVERY**

The Seller shall notify the Buyer in writing of the exact date of delivery, installation and handover of the Equipment in advance and in the manner according to Section 4.2, ensuring that the deadline for the performance hereunder is maintained.

1. **INTERACTION OF THE PARTIES**
	1. The Seller undertakes to notify the Buyer of any obstacles on his part, which may negatively influence proper and timely delivery and/or handover of the Equipment.
	2. The Seller undertakes to provide the Buyer with cooperation in the event of inspections by authorized entities in connection with the Projects.
2. **DELIVERY, INSTALLATION, HANDOVER AND FINAL ACCEPTANCE**
	1. The Seller shall transport the Equipment at his own cost to the place of performance. If the shipment is intact, the Buyer shall issue delivery note for the Seller.
	2. The Seller shall perform and document the installation of the Equipment and launch experimental tests in order to verify whether the Equipment is functional and meets the technical requirements of Annexes No. 1 and 2 hereof.
	3. The handover procedure shall be completed by handover of the Equipment confirmed by the Handover Protocol containing specifications of all performed tests. Handover Protocol shall contain the following mandatory information:
		1. Identification of the Seller, the Buyer and any subcontractors;
		2. Description of the Equipment including description of all components and their serial / production numbers;
		3. Description of the Acceptance Tests according to the relevant part of Section 3.2.3 of the Contract and their results;
		4. List of technical documentation according to Section 3.2.4 of the Contract;
		5. Confirmation of the training according to Section 3.2.5 of the Contract, including a list of participants and information on its extent;
		6. Buyer`s possible objections to minor defects of the Equipment including the manner of and deadline for their removal and
		7. Signatures of authorized representatives of the Buyer and the Seller, with the date indicated.
	4. Handover of the Equipment does not relieve the Seller from liability for damage caused by its defects.
	5. The Buyer shall not be obliged to accept the Equipment or any part thereof which is defective (even if such defects - on their own or in connection with other defects – do not constitute an obstacle to the use of the Equipment). In such a case, the Buyer shall issue a report containing the reason for his refusal to accept the Equipment or its part. If the Equipment or its part upon handover does not meet the parameters defined in Annexes No. 1 and 2 to this Contract, such non-compliance is considered a defect of the Equipment.
	6. Should the Buyer not exercise his right not to accept the Equipment or its part with a defect, the Seller and the Buyer shall list all defects detected in the Handover Protocol, including the manner of and deadline for their removal. Should the Parties not be able to agree in the Handover Protocol on the deadline for removal of the defects, it shall be understood that all above shall be removed / rectified within 10 days of handover.
3. **REPRESENTATIVES, NOTICES**
	1. The Seller authorized the following representatives to communicate with the Buyer in all matters relating to the Equipment delivery, installation and handover:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e-mail: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

tel. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (TO BE FILLED IN BY THE BIDDER)

* 1. The Buyer authorized the following representatives to communicate with the Seller in all matters relating to the Equipment delivery, installation and handover:

xxxxxxxxxxxxxxxx
e-mail: xxxxxxxxxxxxxxxx
tel. (+420) xxxxxxxxxxxxxxxx

* 1. The representatives according to Sections 11.1 and 11.2 can be changed by a unilateral written declaration of the Buyer / Seller delivered to the Seller / Buyer.
	2. All notifications to be made between the Parties hereunder must be made out in writing and delivered by hand (with confirmed receipt) or by post (to the address of the Seller’s or Buyer’s registered offices), or in the form of electronic delivery incorporating electronic signature (qualified certificate) to epodatelna@fzu.cz in the case of Buyer and to …….@...... (TO BE FILLED IN BY THE BIDDER) in the case of the Seller.
	3. In all technical and expert matters (discussions on the Equipment testing, notification of the need to provide warranty or post-warranty service, technical assistance etc.), electronic communication between technical representatives of the Parties will be acceptable using e-mail addresses specified in Sections 11.1 and 11.2.
1. **TERMINATION**
	1. This Contract may be terminated early by agreement of the Parties or withdrawal from the Contract on the grounds stipulated by law or in the Contract.
	2. The Buyer is entitled to withdraw from the Contract without any penalty from the Seller in any of the following events:
		1. The Seller is in delay with the delivery of the Equipment longer than 4 weeks after the date pursuant to Section 4.1 hereof.
		2. The Seller is more than 2 weeks in delay with the removal of Equipment defects listed in the list of detected defects of the Handover Protocol according to Section 10.6.
		3. The technical parameters or other conditions set out in the technical specifications defined in Annexes No. 1 and 2 to this Contract and in the relevant applicable technical standards will not be met by the Equipment at handover.
		4. Facts emerge bearing evidence that the Seller will not be able to deliver or handover the Equipment,
		5. The Seller was legally found guilty of committing a misdemeanour or other serious illegal act within the framework of labour law regulations and regulations related to employment and health and safety at work as part of the proceedings initiated by a public authority,
		6. The Seller was legally found guilty of committing a misdemeanour or other serious illegal act within the framework of environmental law as part of the proceedings initiated by a public authority.
	3. In all cases according to Section 12.2, the Buyer may also withdraw from the Contract only to the extent of the part relating to the mentioned breach of the Contract.
	4. The Seller is entitled to withdraw from the Contract in the event of the Buyer is in default with the payment for more than 1 month except of the cases if the Buyer refused an invoice due to defect on the Equipment or its part or due to the breach of the Contract by the Seller.
	5. Withdrawal from the Contract shall be effective on the date the notice of withdrawal is delivered to the Seller / Buyer. In the event of withdrawal, the performances received under this Contract (or its part in the case of withdrawal according to Section 12.3) prior to withdrawal shall be duly returned.
	6. In the event of early termination of the Contract, the Seller shall ensure the removal of the Equipment or its part from the place(s) of performance within 30 days from the date on which withdrawal from the Contract became effective. The removal of the Equipment must be preceded by the return of any already paid part of the Price to the Buyer’s account. The Buyer will provide the Seller with the necessary cooperation similar to the cooperation during the installation of the Equipment. The cost of removal shall be paid by the Party which caused the early termination of the Contract by breaching it. If the Seller does not ensure the removal of the Equipment or its part from the place of performance within the period according to the first sentence, the Buyer is entitled to sell the Equipment to a third party and use the funds to satisfy his claims against the Seller. The Buyer shall then transfer the remaining funds (if any) to the Seller's account specified in the header of this Contract. The Buyer shall then transfer the remaining funds (if any) to the Seller's account specified in the header of this Contract.
2. **INSURANCE**
	1. The Seller undertakes to insure the Equipment against all risks, in the amount of the Price for the entire period from the commencement of the transportation of the Equipment until duly handed over to the Buyer. In the event of a breach of this obligation, the Seller shall be liable to the Buyer for damages incurred in connection therewith.
	2. The Seller is liable for the damage that he has caused. The Seller is also liable for damage caused by third parties which have undertaken to carry out performance or part thereof under this Contract.
3. **WARRANTY TERMS**
	1. The Seller shall provide warranty for the quality of the Equipmentfor a period of **12 months**.
	2. The warranty period shall commence on the day following the date of signing of the Handover Protocol pursuant to Section 10.3 hereof or, in the event that the Equipment has been handed over with minor defects, on the day following the date of removal of all such defects.
	3. The warranty does not cover consumable parts. Consumable parts for the purposes of the Contract are the items contained in the Equipment which are consumed at regular intervals during the normal use of the Equipment, i.e. parts which have a specified typical lifetime, that does not exceed the warranty period provided the Equipment is used with normal frequency.
	4. The Seller undertakes to provide free Equipment service through authorized technicians and free regular service inspection at the place of performance to the extent specified by the Equipment manufacturer and by the Contract for the entire warranty period according to this Contract, including repairs, delivery of spare parts, transport and work of an authorized service technician.
	5. Should the Buyer discover a defect, he shall notify the Seller to remove such defect using the e-mail address: …….@...... (TO BE FILLED IN BY THE BIDDER). The Seller is obliged to notify the Buyer without delay about any change of this e-mail address. The Seller shall be obliged to review any warranty claim within 72 hours (within business days) from its receipt.
	6. During the warranty period, the Seller shall be obliged to remove any claimed defects within 30 business days from receipt of the warranty claim / within 20 days from receipt of the warranty claim in cases where the claimed defect does not require the intervention of an authorised technician. In case of unusual defects when a special component is needed, the Seller shall be obliged to remove the defect within a period corresponding to the nature of the defect and to set a deadline for handing over the repaired Equipment.
	7. During the warranty period, any and all costs associated with defect removal / repair including transport and travel expenses of the Seller shall be always borne by the Seller.
	8. The repaired part of the Equipment shall be handed over by the Seller to the Buyer on the basis of a protocol confirming the removal of the defect (hereinafter the “**Repair Protocol**”). If the part of the Equipment is duly repaired and defect-free, the Buyer will confirm the Repair Protocol.
	9. The repaired part (component) shall be subject to a new warranty term in accordance with Section 14.1 which commences to run on the day following the date when the Repair Protocol was executed.
	10. After the warranty expires, the Seller shall provide paid post-warranty [out-of-warranty] service at least for a period of 8 years after the expiration of the warranty; the service terms shall be identical to those of Sections 14.5 and 14.6. The Seller also guarantees the availability of spare parts and Equipment maintenance kits throughout this period.
	11. If Equipment has defects, due to which it cannot be demonstrably used in full for more than 60 days (period of defects) during six or less consecutive months of the warranty period, the Seller is obliged to deliver new part of Equipment without defects within 180 days after being requested to do so in writing, unless the Parties agree otherwise.
4. **CONTRACTUAL PENALTIES**
	1. The Buyer shall be entitled to a contractual penalty in the amount of 0,1 % of the Price for each commenced day of delay with the performance pursuant to the relevant part of Section 4.1 hereof.
	2. The Buyer shall be entitledto a contractual penalty in the amount of 0.05 % of the Price for each commenced day of delay with the performance pursuant to Section 14.5 hereof and with the removal of defects claimed within the warranty period pursuant to Section 14.6 and 14.11 hereof.
	3. In the event of default in payment of any due receivables (monetary debt) under the Contract, the defaulting Party (the debtor) shall be obliged to pay a contractual penalty of 0.05 % of the amount due for each commenced day of delay in payment.
	4. The total amount of contractual penalties for the Seller shall not exceed 30% of the Price and the same shall apply to the Buyer.
	5. Contractual penalties are payable within 30 days of receipt of the demand for payment.
	6. Payment of the contractual penalty shall be without prejudice to the rights of the Parties to claim compensation for damages incurred.
	7. Payment of any contractual penalty cannot be demanded if the breach of the contractual obligation is caused by force majeure.
5. **DISPUTES**

16.1 Any and all disputes arising from or relating to this Contract shall be settled by the Parties by mutual negotiations. In the event that any dispute cannot be resolved by negotiations within sixty (60) days, the dispute shall be resolved by a competent court in the Czech Republic upon a legal action brought by either Party; the competent court shall be determined by the location of the registered office of the Buyer. Disputes shall be settled exclusively under the law of the Czech Republic.

1. **FINAL PROVISIONS**
	1. This Contract constitutes the entire agreement between the Parties. The relations between the Parties not regulated by this Contract shall be governed by Czech law, in particular by the Act No. 89/2012 Coll., the Civil Code, as amended (hereinafter the **“Civil Code”**).
	2. This Contract may be amended or supplemented solely by written amendments. The Parties expressly refuse to amend the Contract in any other way.
	3. The Parties expressly agree that the Contract as a whole, including all attachments, will be published in accordance with Act No. 340/2015 Coll. on special conditions for the effectiveness of some contracts, publication of these contracts and Contract Register, as amended. The Parties hereby declare that all information contained in the Contract and its Annexes is not considered trade secrets under § 504 of the Civil Code and grant permission for their disclosure without setting any additional conditions.This Contract becomes effective as of the day of its publication in the Contract Register, which shall be provided by the Buyer.
	4. The following Annexes form an integral part of the Contract:

Annex No. 1: Technical specification on the subject of performance (The Bidder shall fill in the table in the manner as described within the Annex)

Annex No. 2: Technical description of the Equipment as presented in Seller’s bid (Bidder shall present in his bid)

* 1. The Parties, manifesting their consent with the entire contents of this Contract, attach their signature hereunder.

In Prague

For the Buyer

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

RNDr. Michael Prouza, Ph.D.

Director

In \_\_\_\_\_\_\_\_\_\_

For the Seller

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\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_ (TO BE FILLED IN BY THE BIDDER)

**Annex No. 1 - Technical specification on the subject of performance**

**Tab. 1 - The Equipment must meet the technical conditions and include components listed in this table.**

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Description and minimum specification of the Equipment as defined by the Buyer | Description and specification of the Equipment offered by the Seller | Complies YES/NO |
| 1 | **Microscope** |  |  |
| 1.1 | Confocal microscope for Raman and second-harmonic generation spectroscopy with a lateral (x, y) resolution of approximately 300 nm and a depth (z) resolution below 1 µm for illumination with a 532 nm laser in the **reflection geometry**. |  |  |
| 1.2 | Ability to perform spectroscopic measurements and optical imaging using inverted confocal microscopy extension (including transmission beam path). |  |  |
| 1.3 | Ability to perform spectroscopic measurements in side-illumination geometry (collection of the scattered light with the optical microscope). |  |  |
| 1.4 | Motorized XY-sample stage, software controlled, at least 50 mm travel range in both x- and y-direction, step size better than 30 nm in both the x- and y-direction. |  |  |
| 1.5 | Motorized Z-stage, software controlled, travel range at least 25 mm, step size better than 15 nm,  |  |  |
| 1.6 | Ability to perform topographic one-path Raman imaging within the scan range of the stage |  |  |
| 1.7 | White light source and camera for sample visualization in both the reflection and transmission configuration. |  |  |
| 1.8 | Manual rotatable (at least 0 – 90°) polariser placed after the white light source and manual rotatable (at least 0 – 90°) analyser placed before camera to perform polarized white-light microscopy |  |  |
| 1.9 | Rigid table to mount the confocal microscope for Raman spectroscopy and second-harmonic generation  |  |  |
|  |  |  |  |
| 2 | **Lasers + Raman filters** |  |  |
| 2.1 | 532 nm laser with at least 50 mW laser output power |  |  |
| 2.2 | Computer-controlled power attenuator for the 532 nm laser (at least to be able to set 100%, 50%, 25%, 10%, 5%, 1%, 0.5%, 0.1% of the laser power) |  |  |
| 2.3 |  532 nm Laser-Line Bandpass Filter |  |  |
| 2.4 | 532 nm Long pass Raman filter allowing to measure Raman spectra down to 90 cm-1 |  |  |
| 2.5 |  Bragg filters set allowing to measure Stokes and anti-Stokes Raman spectra down to at least 10 cm-1 for 532 nm laser set up. |  |  |
| 2.6 | Second exit for 532 nm Laser including mechanical selection of the exit |  |  |
| 2.7 | Computer controlled motorised rotator with λ/2 waveplate for rotation of 532 nm laser polarization, range at least -90 – +90° with the step at least 0.5° |  |  |
| 2.8 | 1064 nm excitation picosecond pulsed laser with pulse width <20 ps, repetition rate 50 MHz and average output power at least 200 mW |  |  |
| 2.9 | Computer-controlled power attenuator for the 1064 nm laser (at least to be able to set 100%, 50%, 25%, 10%, 5%, 1%, 0.5%, 0.1% of the laser power) |  |  |
| 2.10 | 1064 nm Laser-Line Bandpass Filter |  |  |
| 2.11 | Short pass filter to remove the 1064 nm laser line from the spectrum |  |  |
| 2.12 | Computer controlled motorised rotator with λ/2 waveplate for rotation of 1064 nm laser polarization, range at least -90 – +90° with the step at least 0.5° |  |  |
| 2.13 | Possibility to mount a neutral density (ND) filter with optical density (OD) 2 for both the 532 and 1064 nm laser. |  |  |
|  |  |  |  |
| 3 | **Spectrometer** |  |  |
| 3.1 | Spectrometer with focal length of at least 500 mm |  |  |
| 3.2 | 3 gratings mounted on a computer controlled grating turret |  |  |
| 3.3 | Grating 1: 300 lines/mm, blazed at 500 nm |  |  |
| 3.4 | Grating 2: 1800 lines/mm, blazed at 500 nm |  |  |
| 3.5 | Grating 3: 2400 lines/mm, blazed at 500 nm |  |  |
| 3.6 | Scattered light should be depolarized (for example, by using scrambler or depolarizer) or the change in polarisation of scattered light should be compensated (by using synchronised rotation of analyser and λ/2 waveplate) before the grating to eliminate the effect of light polarization on the grating and detector by at least 80%  |  |  |
| 3.7 | Ultra-sensitive electron multiplying charge-coupled device camera (EMCCD). Software controlled electron multiplying gain (1-1000x), Peltier cooled, quantum efficiency larger than 90% for 500-700 nm energy window. |  |  |
| 3.8 | Computer controlled motorised rotator with Glan-Thomson polarizer for polarization analysis, range of rotation at least 0° - 180° with the step at least 0.5°. |  |  |
| 3.9 | Automatized spectral calibration of the spectrometer with an embedded calibration lamp. |  |  |
|  |  |  |  |
| 4 | **Objectives** |  |  |
| 4.1 | 2.5x objective, working distance at least 10 mm, suitable for polarization applications |  |  |
| 4.2 | 10x plan achromat objective, working distance at least 10 mm, numerical aperture at least 0.2 |  |  |
| 4.3 | 50x plan achromat objective, working distance at least 1 mm, numerical aperture at least 0.7 |  |  |
| 4.4 | 100x plan achromat objective, working distance at least 1 mm, numerical aperture at least 0.9 |  |  |
| 4.5 | 20x plan achromat objective, working distance at least 11 mm, numerical aperture at least 0.2 |  |  |
| 4.6 | 50x plan achromat objective, working distance at least 9 mm, numerical aperture at least 0.5 |  |  |
|  |  |  |  |
| 5 | **Cryostat** |  |  |
| 5.1 | Adapter to mount Linkam temperature stage on the XY-table. The Linkam stage is already owned by the institute and is not part of the tender. |  |  |
| 5.2 | Optical cryostat for both transmission and reflection measurements, which can be mounted on the XY-table, temperature range 4 – 500 K, temperature stability better than 0.2 K, working distance (outside window – sample holder) of maximum 6 mm, has quartz windows with a diameter of at least 10 mm. |  |  |
| 5.3 | Computer controllable temperature controller |  |  |
| 5.4 | Flexible liquid helium transfer hose, in 90° configuration for horizontal feed cryostat with manual needle valve and oil-free membrane gas pump. |  |  |
|  |  |  |  |
| 6 | **Control computer** |  |  |
| 6.1 | Computer should have at least Windows 11 Pro or an open-source distribution with long term support. |  |  |
| 6.2 | Computer should have at least 32 GB Random-access memory (RAM), at least 500 GB solid-state drive (SSD) disk, 4TB hard disk drive (HDD) and suitable processor.  |  |  |
| 6.3 | At least a 27’’ monitor with at least 2560x1440 pixels |  |  |
| 6.4 | Software to control the microscope, with at least the ability to make optical images of the sample, move the sample stage and acquire spectra, control the motorized rotators, shutters, spectrometer and power of both lasers, perform basic data analysis, |  |  |
| 6.5 | Possibility to control all the computer controllable options of the Confocal microscope for Raman and second-harmonic generation using external scripting language such as Python, LabVIEW, ... |  |  |

(Bidder shall fill in the columns “Description and specifications of the Equipment offered by the Seller” and “Complies YES / NO”)

**Acceptance test and required training: [verify the parameters specified in table 1]**

* Calibrate spectrometer using the Argon/Mercury calibration lamp,
* Make a z-scan of a thin oxide film on an oxide substrate with low frequency Raman modes [*test z-scan and low frequency abilities],*
* Make SHG map of domains of a sample provided by the Buyer [*test SHG and XY mapping of the sample],*
* Measure angular dependent polarization of sample provided by the Buyer [*test motorized polarization measurements],*
* Measure Raman spectroscopy of sample provided by the Buyer using side-illumination geometry and inverted confocal microscopy extension *[test side-illumination and inverted geometry]*,
* Measure confocal Raman imaging guided by surface topography *[test topographic Raman imaging]*,
* Measure Raman spectrum of sample provided by the Buyer at 4K and 500K. [V*erify the resolution of the spectrometer at 4K, test low temperature stage].*

**Annex No. 2**

**The Seller’s bid in the extent it describes technical parameters of the Equipment**

(Bidder shall present in his bid)