449806-2026 - Direct award preannouncement

Denmark – Spectrometers – Raman Microscope for DTU Chemistry
OJ S 124/2026 01/07/2026
Voluntary ex-ante transparency notice
Supplies

1. Buyer

1.1. Buyer

Official name: Danmarks Tekniske Universitet - DTU
Email: aasst@dtu.dk
Legal type of the buyer: Body governed by public law
Activity of the contracting authority: Education

2. Procedure

2.1. Procedure

Title: Raman Microscope for DTU Chemistry
Description: The Technical University of Denmark (DTU) intends to acquire one complete high-resolution confocal Raman microscopy and spectroelectrochemical characterization system, including all associated hardware, software, accessories, installation, commissioning, training, and warranty. The system will support research and education activities within catalysis, electrochemistry, materials science, energy conversion, sustainable fuels, and chemical synthesis. The primary purpose is to enable advanced in situ and operando characterization of functional materials, catalyst surfaces, and catalytic interfaces under realistic operating conditions, including electrochemical environments, elevated temperatures, controlled gas atmospheres, liquid-phase operation, and flow conditions. The instrument shall provide high-sensitivity Raman spectroscopy and microscopy with high spectral and spatial resolution. The system must support characterization of solids, liquids, heterogeneous materials, catalyst surfaces, thin films, nanostructured materials, powders, and solid–liquid and solid–gas interfaces. The equipment shall further enable investigation of reaction intermediates, catalyst transformations, phase transitions, adsorbates, reaction microenvironments, and dynamic processes occurring during electrochemical and catalytic reactions. The system shall include a confocal Raman microscope with automated operation, high-resolution spectroscopic capabilities, motorized sample positioning, automated focusing, Raman mapping and imaging functionality, and support for multiple excitation wavelengths covering the visible and near infrared spectral range, including excitation wavelengths of approximately 532 nm, 633 nm, and 785 nm. The system must be capable of performing both point measurements and spatially resolved Raman imaging of heterogeneous samples with automated data acquisition. The acquisition shall include low-noise detector technology suitable for weak Raman signals, time resolved measurements, and quantitative analysis of both Stokes and anti-Stokes Raman scattering. The system shall provide access to ultra-low-frequency vibrational information (down to 10 cm-1) relevant for studying structural changes, lattice dynamics, catalyst phase transformations, interfacial species, adsorption phenomena, and local temperature effects at catalytic interfaces. The instrument shall further enable simultaneous investigation of chemical composition, structural dynamics, and local thermal phenomena under operating conditions through acquisition of both Stokes and anti-Stokes Raman spectra. The system shall support automated Raman mapping and hyperspectral imaging of heterogeneous samples with

micrometre-scale spatial resolution and high positional accuracy. The system must enable investigation of catalyst heterogeneity, dynamic restructuring processes, spatial distributions of reaction intermediates, and structure–activity relationships during operation. The system shall support time-resolved and operando measurements through direct integration be-tween electrochemical instrumentation and the spectroscopic platform, enabling synchronized electrochemical control and Raman data acquisition. The system shall allow simultaneous monitoring of electrochemical parameters and spectroscopic responses during catalytic operation and provide direct correlation between catalyst state, reaction intermediates, local temperature, and electrochemical performance. The equipment shall be suitable for spectroelectrochemical investigations of electro-chemical reactions and interfaces under controlled operating conditions. The acquisition shall further include dedicated spectroelectrochemical accessories, electrochemical cells suitable for operando measurements, flow-compatible accessories, control software, data acquisition and processing software, computer workstation, vibration-isolated installation platform, and all components necessary for full operation of the instrument. The system shall be designed for long-term research use and support future expansion through additional optical components, detectors, excitation sources, analytical modules, environmental cells, and experimental accessories. Scope of supply: • One complete confocal Raman spectroscopy and microscopy system. • High-resolution spectrometer and detector system. • Multiple excitation wavelengths. • Automated sample positioning, focusing, and mapping capabilities. • Raman imaging and hyperspectral mapping functionality. • Ultra-low-frequency Raman measurement capability. • Stokes and anti-Stokes Raman measurement capability. • Integrated spectroelectrochemical measurement capability. • Electrochemical cell and associated accessories for operando measurements. • Instrument control, acquisition, synchronization, analysis, and visualization software. • Computer workstation and control electronics. • Optical table or equivalent vibration-isolated installation platform. • Installation, commissioning, training, documentation, and warranty. Quantity: One complete integrated Raman microscopy and spectroelectrochemical characterization system.
Procedure identifier: caec8653-ec6b-4c55-a1a7-cfc39ea99240
Internal identifier: 10793
Type of procedure: Negotiated without prior call for competition

2.1.1. Purpose

Main nature of the contract: Supplies
Main classification (cpv): 38433000 Spectrometers

2.1.2. Place of performance

Postal address: DTU Kemi, Kemikalievej, Building 209
Town: Kongens Lyngby
Postcode: 2800
Country subdivision (NUTS): Københavns omegn (DK012)
Country: Denmark
Additional information: Building 209

2.1.4. General information

Legal basis:
Directive 2014/24/EU
The Public Procurement Act - The Danish Public Procurement Act

5. Lot

5.1. Lot: LOT-0000

Title: Raman Microscope for DTU Chemistry

Description: The Technical University of Denmark (DTU) intends to acquire one complete high-resolution confocal Raman microscopy and spectroelectrochemical characterization system, including all associated hardware, software, accessories, installation, commissioning, training, and warranty. The system will support research and education activities within catalysis, electrochemistry, materials science, energy conversion, sustainable fuels, and chemical synthesis. The primary purpose is to enable advanced in situ and operando characterization of functional materials, catalyst surfaces, and catalytic interfaces under realistic operating conditions, including electrochemical environments, elevated temperatures, controlled gas atmospheres, liquid-phase operation, and flow conditions. The instrument shall provide high-sensitivity Raman spectroscopy and microscopy with high spectral and spatial resolution. The system must support characterization of solids, liquids, heterogeneous materials, catalyst surfaces, thin films, nanostructured materials, powders, and solid–liquid and solid–gas interfaces. The equipment shall further enable investigation of reaction intermediates, catalyst transformations, phase transitions, adsorbates, reaction microenvironments, and dynamic processes occurring during electrochemical and catalytic reactions. The system shall include a confocal Raman microscope with automated operation, high-resolution spectroscopic capabilities, motorized sample positioning, automated focusing, Raman mapping and imaging functionality, and support for multiple excitation wavelengths covering the visible and near infrared spectral range, including excitation wavelengths of approximately 532 nm, 633 nm, and 785 nm. The system must be capable of performing both point measurements and spatially resolved Raman imaging of heterogeneous samples with automated data acquisition. The acquisition shall include low-noise detector technology suitable for weak Raman signals, time resolved measurements, and quantitative analysis of both Stokes and anti-Stokes Raman scattering. The system shall provide access to ultra-low-frequency vibrational information (down to 10 cm-1) relevant for studying structural changes, lattice dynamics, catalyst phase transformations, interfacial species, adsorption phenomena, and local temperature effects at catalytic interfaces. The instrument shall further enable simultaneous investigation of chemical composition, structural dynamics, and local thermal phenomena under operating conditions through acquisition of both Stokes and anti-Stokes Raman spectra. The system shall support automated Raman mapping and hyperspectral imaging of heterogeneous samples with micrometre-scale spatial resolution and high positional accuracy. The system must enable investigation of catalyst heterogeneity, dynamic restructuring processes, spatial distributions of reaction intermediates, and structure–activity relationships during operation. The system shall support time-resolved and operando measurements through direct integration be-tween electrochemical instrumentation and the spectroscopic platform, enabling synchronized electrochemical control and Raman data acquisition. The system shall allow simultaneous monitoring of electrochemical parameters and spectroscopic responses during catalytic operation and provide direct correlation between catalyst state, reaction intermediates, local temperature, and electrochemical performance. The equipment shall be suitable for spectroelectrochemical investigations of electro-chemical reactions and interfaces under controlled operating conditions. The acquisition shall further include dedicated spectroelectrochemical accessories, electrochemical cells suitable for operando measurements, flow-compatible accessories, control software, data acquisition and processing software, computer workstation, vibration-isolated installation platform, and all components necessary for full operation of the instrument. The system shall be designed for long-term research use and support future expansion through additional optical components, detectors, excitation sources, analytical modules, environmental cells, and experimental accessories. Scope of supply: • One complete confocal Raman spectroscopy and microscopy system. •

High-resolution spectrometer and detector system. • Multiple excitation wavelengths. • Automated sample positioning, focusing, and mapping capabilities. • Raman imaging and hyperspectral mapping functionality. • Ultra-low-frequency Raman measurement capability. • Stokes and anti-Stokes Raman measurement capability. • Integrated spectroelectrochemical measurement capability. • Electrochemical cell and associated accessories for operando measurements. • Instrument control, acquisition, synchronization, analysis, and visualization software. • Computer workstation and control electronics. • Optical table or equivalent vibration-isolated installation platform. • Installation, commissioning, training, documentation, and warranty. Quantity: One complete integrated Raman microscopy and spectroelectrochemical characterization system.
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5.1.1. Purpose

Main nature of the contract: Supplies
Main classification (cpv): 38433000 Spectrometers

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Postal address: DTU Kemi, Kemikalievej, Building 209
Town: Kongens Lyngby
Postcode: 2800
Country subdivision (NUTS): Københavns omegn (DK012)
Country: Denmark
Additional information: Building 209

5.1.3. Estimated duration

Duration: 1 Year

5.1.6. General information

Procurement Project not financed with EU Funds.
The procurement is covered by the Government Procurement Agreement (GPA): yes

5.1.15. Techniques

Framework agreement:
No framework agreement
Information about the dynamic purchasing system:
No dynamic purchase system

5.1.16. Further information, mediation and review

Review organisation: Klagenævnet for Udbud
Information about review deadlines: Complaint that the Contracting Authority, contrary to the Public Procurement Act, has concluded a contract without prior publication of a contract notice in the European Union Official Journal must be submitted no later than 30 calendar days from the date after a contract award notice has been published by the Contracting Authority in the European Union Official Journal and that contract award notice includes the grounds for the decision to award the contract directly, cf. lov om Klagenævnet for Udbud (Complaints Board for Tenders) § 7, section 3.
Organisation providing additional information about the procurement procedure: Danmarks Tekniske Universitet - DTU
Organisation providing offline access to the procurement documents: Danmarks Tekniske Universitet - DTU
Organisation providing more information on the review procedures: Konkurrence- og Forbrugerstyrelsen

Organisation whose budget is used to pay for the contract: Danmarks Tekniske Universitet - DTU
Organisation executing the payment: Danmarks Tekniske Universitet - DTU
Organisation signing the contract: Danmarks Tekniske Universitet - DTU

6. Results

Direct award
:
Justification for direct award: The contract can be provided only by a particular economic operator because of an absence of competition for technical reasons
Other justification: DTU intends to acquire a high-resolution confocal Raman microscopy and spectroelectrochemical characterization system for advanced operando studies of catalytic and electrochemical interfaces. The instrument will enable research on electrocatalytic reactions, chemical synthesis, carbon–heteroatom coupling reactions, catalyst degradation, and sustainable energy-conversion and storage processes. The scientific objective is to identify transient reaction intermediates, catalyst transformations, local temperature effects, and dynamic structure–activity relationships under realistic operating conditions. This requires a combination of functionalities that are technically necessary for the planned research programme and that, based on the conducted market survey, are not available as an equivalent integrated solution from alternative suppliers. Alternative modular or multi-supplier solutions were assessed and found not to provide equivalent technical capability, synchronization ac-curacy, data quality, or experimental reliability. The following functionalities are considered essential for the planned research programme: • Direct synchronization between Raman spectroscopy and electrochemical control is necessary be-cause the primary purpose of the instrument is operando investigation of electrochemical interfaces during dynamic experiments such as pulsed electrolysis, catalyst activation, and degradation studies. Without direct synchronization, Raman spectra and electrochemical data must be acquired separately and aligned afterwards. This would reduce the necessary temporal accuracy and prevent the ability to correlate spectroscopic transformations with specific electrochemical events. Based on the market survey performed, no alternative supplier was identified to provide the direct integration and synchronized operation. • Automated laser-scanning mapping of heterogeneous sensitive catalyst and material surfaces is necessary because the catalyst materials investigated are heterogeneous and often undergo spatially dependent transformations during operation. Without rapid laser-scanning measurements, investigation of catalyst heterogeneity becomes significantly slower and increase local laser exposure. This results in sample heating, photochemical damage, and measurement-induced irreversible surface modification, thereby significantly compromising the validity, reliability, and scientific integrity of the measurements. The market survey identified a patented laser-scanning implementation specifically designed to perform rapid measurements while minimizing local laser exposure and measurement-induced perturbation of sensitive catalyst surfaces. • Ultra-low-frequency Raman capability (approximately 5 cm-1 or lower) is necessary because many catalyst transformations relevant to electrocatalysis and novel materials involve low-frequency vibrational modes associated with catalyst restructuring, lattice dynamics, phase transitions, and adsorb-ate-surface interactions. Without access to the ultra-low-frequency spectral region, these processes cannot be directly observed. Ultra-low-frequency Raman measurements are not available from other suppliers below 10 cm-1; additionally. • Quantitative Stokes and anti-Stokes Raman measurements are necessary for investigating local thermal effects and non-equilibrium phenomena at catalytic interfaces through Raman thermometry. Without reliable anti-Stokes measurements, local catalyst temperatures and thermal gradients cannot be

determined directly. Some suppliers offer anti-Stokes measurements; however, no alternative supplier was identified as providing this functionality in combination DTU needs. • Time-resolved operando Raman measurements are necessary because catalytic interfaces evolve dynamically on timescales ranging from milliseconds to seconds. Without sufficient temporal resolution, transient reaction intermediates and catalyst restructuring processes cannot be observed directly, preventing mechanistic investigation of dynamic catalytic phenomena. Several suppliers offer time-resolved Raman measurements. No alternative supplier was identified as providing time-resolved operando Raman measurements together with synchronized Raman–electrochemistry. The market survey included detailed assessment of commercially available systems from the industry. While several suppliers offer individual elements of the required functionality, significant limitations were identified. Some suppliers do not provide integrated spectroelectrochemical control and lacks the required combination of synchronized electrochemistry and automated laser-scanning functionality. Others did not provide integrated spectroelectrochemical control and relies on fibredefined confocality rather than a continuously adjustable confocal system. And some did not provide integrated spectroelectrochemical control and does not offer ultra-low-frequency Raman capability. Consequently, none of the assessed alternative suppliers were found capable of providing the necessary technically required functionalities within a single integrated commercial platform. Alternative solutions would require combinations of third-party hardware, custom software integration, external synchronization systems, and modified experimental workflows. Such approaches would introduce additional synchronization uncertainty between spectroscopic and electrochemical measurements, increase system complexity, require extensive validation and maintenance, and limit reproducibility of the experiments. Because the planned research depends on precise temporal correlation between electrochemical events and spectroscopic observations, these approaches were assessed as not providing the necessary technical solution. Accordingly, no reasonable alternative solution was identified that could fulfil the scientific and technical requirements of the research programme.

6.1. Result lot identifier: LOT-0000

6.1.2. Information about winners

Winner:
Official name: Horiba Europe GmbH
Tender:
Tender identifier: Offer
Identifier of lot or group of lots: LOT-0000
Value of the tender: 418 298,00 EUR
Subcontracting: No
Contract information:
Identifier of the contract: Contract
Date on which the winner was chosen: 26/06/2026
Organisation signing the contract: Danmarks Tekniske Universitet - DTU

8. Organisations

8.1. ORG-0001

Official name: Danmarks Tekniske Universitet - DTU
Registration number: 30060946
Postal address: Anker Engelunds Vej 1
Town: Kgs. Lyngby

Postcode: 2800
Country subdivision (NUTS): Københavns omegn (DK012)
Country: Denmark
Contact point: Anna Storch
Email: aasst@dtu.dk
Telephone: +45 999999
Internet address: https://www.dtu.dk
Buyer profile: https://eu.eu-supply.com/ctm/company/companyinformation/index/165863
Roles of this organisation:
Buyer
Organisation providing additional information about the procurement procedure
Organisation providing offline access to the procurement documents
Organisation signing the contract
Organisation whose budget is used to pay for the contract
Organisation executing the payment

8.1. ORG-0002
Official name: Klagenævnet for Udbud
Registration number: 37795526
Postal address: Nævnenes hus, Toldboden 2
Town: Viborg
Postcode: 8800
Country subdivision (NUTS): Østjylland (DK042)
Country: Denmark
Email: klfu@naeveneshus.dk
Telephone: +45 35291000
Internet address: http://www.klfu.dk
Roles of this organisation:
Review organisation

8.1. ORG-0003
Official name: Konkurrence- og Forbrugerstyrelsen
Registration number: 10294819
Postal address: Carl Jacobsens Vej 35
Town: Valby
Postcode: 2500
Country subdivision (NUTS): Byen København (DK011)
Country: Denmark
Email: kfst@kfst.dk
Telephone: +45 41715000
Internet address: http://www.kfst.dk
Roles of this organisation:
Organisation providing more information on the review procedures

8.1. ORG-0004
Official name: Horiba Europe GmbH
Town: Göteborg
Postcode: 41705
Country subdivision (NUTS): Skåne län (SE224)
Country: Sweden
Roles of this organisation:

Tenderer
Winner of these lots: LOT-0000

8.1. ORG-0005

Official name: Mercell Holding ASA
Registration number: 980921565
Postal address: Askekroken 11
Town: Oslo
Postcode: 0277
Country subdivision (NUTS): Oslo (NO081)
Country: Norway
Contact point: eSender
Email: publication@mercell.com
Telephone: +47 21018800
Fax: +47 21018801
Internet address: http://mercell.com/
Roles of this organisation:
TED eSender

Notice information

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