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## RFP UJ 34/2025: PROCUREMENT OF AN ELECTRON PARAMAGNETIC RESONANCE (EPR) SPECTROMETER

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### 1. EQUIPMENT DESCRIPTION AND BACKGROUND – REASON FOR PURCHASE

The University of Johannesburg's current Strategic Plan i.e. UJ Strategic Plan 2035 guides and frames its activities at all levels of the organization. This strategic plan speaks to the Mission of the University to inspire its community to transform and serve humanity through innovation and the collective and collaborative pursuit of knowledge. It provides the roadmap to achieving UJ's Vision to be an international University of choice, anchored in Africa, dynamically shaping the future. The UJ strategic plans indicate that Research and Innovation through publications, human capacity development, local and international collaboration contributes immensely to the UJs roadmap 2035. Acquiring this kind of instrument talks supports these pillars. The proposed instrument will lead to publication of research in high impact factor journals as this instrument is one an advanced piece of equipment that gives unique results depending on the material being analysed. This instrument will also contribute to human capacity development both locally and internationally by increasing the number of MSc and PhD graduates and improve postgraduate throughput and capacity at the University of Johannesburg. Access to any instrument directly impacts timeous completion of postgraduate research.

### 2. SPECIFICATIONS OF INSTRUMENT

#### A. Minimum Specification of Instrument

Operating frequency	X-band
Microwave power	1 $\mu$ W – 100 mW
Sensitivity	5 $\square$ 1010 spins/mT (5 $\square$ 109 spins/G)
Concentration sensitivity	20 pM
Field homogeneity	$\square$ 5 $\mu$ T (50 mG) within sample region
Field stability	1.0 $\mu$ T/h (10 mG/h)
Sweep resolution (field and time)	$\square$ 250 000 points
Magnetic field range	up to 650 mT (up to 6500 G)
Modulation frequency	10 kHz and 100 kHz
Compact size	45 g, 397 $\square$ 262 $\square$ 192 mm

#### B. Rapid automated tuning and measurement

ESR software functionality (automated data acquisition, processing, and storage)

Fully calibrated for quantitative analysis

Reference free quantification of EPR species

Low infrastructure requirement (air cooled)

**C. UV-Vis Light System for photoelectrocatalytic application**

The light source should be of high-quality solar grade

**D. The instrument should have an electrochemical module**

The module should be a full working potentiostat

The module must be easily integrated into the EPR

Provision of suitable electrodes and probes

**E. Software**

The software should be state-of-the-art and user-friendly.

It should come free with all licenses and libraries

It should be compatible with Windows

It should have a remote access capability via Wi-Fi

Excellent data acquisition

It must be able to give both quantitative (concentration and counting) and qualitative (type of radical) information

It should have excellent data analysis, data processing, data presentation, data filtering etc.

The supplier should include the workstation

**3. INSTALLATION AND COMMISSION**

The equipment must have a minimum of 12 months' warranty or offer an extended period.

Delivery required to the point of operation.

The supplier is required to do installations and commissioning of the equipment. The Supplier is required to provide training on how to use the machine.

The supplier should include the workstation, software, and applicable licenses for operation.

**4. SERVICE AND MAINTENANCE**

The service provider must provide,

- maintenance and service support including ad hoc services and additional consumables
- Provide details in the event of power failure, technical difficulties, or spares unavailability
- After-hours and emergency services: Provide details of support services for the University of Johannesburg end-users.

**5. TENDER EVALUATION**

The tender will be evaluated in three stages,

Stage 1: Adherence to Mandatory Compliance Requirements

**Stage 2: Technical evaluation + Compliance to specifications – 100%**

Stage 3: Financial and BEE: 80/20

### Stage 2: Technical Evaluation

No	Area	Technical Criteria	Maximum Points
(i)	<b>Industry Experience</b>	<p>The service provider must have a minimum of five (5) years' experience in similar industry</p> <p>Bidder Experience            0 Years' Experience = 0 Points            1 Years' Experience = 10 Points            2 Years' Experience = 20 Points            3 Years' Experience = 30 Points            4 Years' Experience = 40 Points            5 Years' Experience and more = 50 Points</p>	50 points
(ii)	<b>Contactable references</b>	<p>The service provider must provide five (5) positive written contactable references on a client letterhead, indicating similar services rendered. The reference letters from the clients of a bidder must include:</p> <ul style="list-style-type: none"> <li>• Supplier name • Client letterhead • Contact person and contact telephone numbers • The letter must be signed by a duly authorized person.</li> </ul> <p>Bidders Reference Letters            0 Reference Letters = 0 Points            1 Reference Letters = 10 Point            2 Reference Letters = 20 Points            3 Reference Letters = 30 Points            4 Reference Letters = 40 Points            5 Reference Letters and more = 50 Points</p>	50 points
	<b>Total</b>		<b>100</b>

All bidders must obtain a minimum of 70 points out of 100 points in stage 2 evaluation (above) to be considered for further evaluation in terms of stage 3: financial and B-BBEE.

### Stage 3: Financial and B-BBEE