Application Manual

2022 CSIR National Laser Centre Rental Pool Programme (RPP)

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PART 1: Introduction

1.1 Purpose

This manual provides information on opportunities for funding within the CSIR NLC Rental Pool Programme Grant Scheme.

The manual is intended to be an easy reference guide to the CSIR NLC Rental Pool Programme Grant Scheme and to assist potential participants in accessing the available funding. It does not, however, constitute a complete set of policy, procedure or systems supporting the programme.

1.2 Background

At the establishment of the CSIR National Laser Centre (NLC) in 2000, the NLC started a laser equipment access program which is now funded by the Department of Science and Innovation. The Rental Pool Program provides Higher Educational Institutions (HEI) in South Africa the opportunity to access a large number of laser systems, laser diagnostic equipment and laser laboratories available at or from the CSIR National Laser Centre. During the years that followed the equipment program grew, and the equipment base expanded through careful management of funding allocated to expand and maintain the equipment base of the program.

The Department of Science and Innovation has again made funding available which will be used to support HEI research specifically within the multi-disciplinary laser environment in 2021. These funds will be managed by the CSIR NLC.

1.3 Strategic intent

The purpose of the programme is to support laser-based research in South Africa, and to develop, encourage and support a unique programme of building and growing a sustainable corps of expert researchers in South Africa utilising laser technology in their research programs. The objectives of the program are:

- To stimulate and support research at South African Higher Educational Institutions (HEI) in laser-related research, in all research fields.
- To render technical and scientific support to RPP participants at HEI.
- To support the development of a next generation of scientists/engineers to rejuvenate and strengthen the ageing South African scientific and engineering community.
- To encourage research collaboration.
- To effectively manage and expand the CSIR NLC Rental Pool Programme (RPP).

PART 2: Call, Eligibility, Funding and Time lines

2.1 Call for Applications

The CSIR National Laser Centre Rental Pool Program call is facilitated through the NRF online application system. Call documents are published on the NRF website, and applications are submitted electronically on the NRF Online Submission System at https://nrfsubmission.nrf.ac.za.

Proposals will be routed automatically by the NRF submission system to the institution's research office for endorsement, before forwarding it to the CSIR NLC for evaluation.

The scientific and technical contents of the project will be refereed through a peer review mechanism to assess quality of the research plan proposed, human capital development potential and alignment with national priorities. Applications must be substantial and comprehensive to allow proper assessment of the research proposed.

Applicants are encouraged to approach the CSIR NLC for assistance with completion of the application, specifically with reference to gathering information on equipment availability, pricing and suitability of equipment.

For applications to access the high power laser equipment in the NLC's Laser Enabled Manufacturing group, preference will be given to proposals aligned with the NLC's research program in Additive Manufacturing and Laser Surface Engineering. More information available from the NLC.

2.2 Funding

The program allows access to equipment at the CSIR NLC facilities and the rental of equipment for use at the researcher's university laboratories. The program also makes provision for the upgrading of existing equipment in order to ensure suitability for the proposed project. In summary, the grant funds the following activities:

- Preparation and upgrade of equipment approved within the program;
- Maintenance of equipment supported by the RPP;
- Delivery, setup and return cost of equipment where necessary;
- Technical or scientific support from the CSIR NLC staff;
- Insurance costs for equipment while at the HEI;
- Travel and accommodation costs **limited to** traveling to CSIR NLC laboratories or facilities at HEIs where CSIR RPP equipment are hosted to access equipment in approved research projects;

- Accommodation and travel support for attendance of annual RPP Review Meeting. Grant holders and their students who are involved in the supported project are required to attend this compulsory reporting session;
- New laser or ancillary equipment required to support research activities;
- Consumables required for research activities, **limited** to optics and other laser-based consumables to support the research project proposed.

Each project will be eligible for new ancillary equipment (smaller diagnostic equipment) to a maximum value of R75 000 and laser-related consumables to a maximum value of R75 000, **subject to the availability of funding**. Consumables will remain the property of the grant holder's institution and will assist in establishing in-house laser infrastructure.

All of the abovementioned costs will contribute to form the budget of each grant holder based on the equipment they request for their laboratories.

2.3 Time line

The time lines for the CSIR NLC Rental Pool Programme Grant Scheme call is shown in **Table 1**. Also listed in this table are the expected dates for the outcomes announcement of the applications.

CALL	OPEN	CLOSE	OUTCOMES ANNOUNCEMENT
2022	20 September 2021	29 October 2021	31 March 2022

Table 1: Call & outcomes announcement

*See call document for actual due date.

2.4 Eligibility criteria

Researchers from all higher education institutions (public universities) may participate in the CSIR NLC Rental Pool Program Grant Scheme.

The programme considers applications from researchers who are:

- Involved in laser-based research in any field in natural science, engineering and health sciences;
- Hold at least a Masters degree and have a reasonable research track record.
- Employed at South African Higher Education Institutions on a full-time or full-time contract basis. If on contract basis, the length of the contract should at least be for the duration of the research project applied for and be clearly indicated in the application.

Participation of post-graduate students (Masters and PhD as key drivers), registered at a recognised South African higher education institution is of paramount importance as well as the collaborations with other researchers based at the applicant's institution and other institutions. These should be stated clearly by the researcher in the application. Although student involvement is a priority, the primary motivation for the research grant is to address a specific research question. Proposals which requests funding support merely for training of students will be disqualified.

2.5 Duration of the Grant

Researchers can apply for a multi-year project, with maximum duration of 3 years.

Contracting with successful applicants happens on a yearly basis, and continuation funding for a second or a third year of approved projects can only be considered based on the submission of a comprehensive progress report at the end of each year of the project. Continuation is subject to the progress reported in the Annual Progress Report, the quality of the Annual Progress report and the presentation made at the User Meeting, usually arranged for January of the year of funding.

Continuation beyond the first three years can be considered if a new funding application is submitted to support a continued research program.

2.6 Assessment process

All applications received by the CSIR National Laser Centre will be submitted to an independent review panel appointed by the CSIR National Laser Centre. The purpose of the review panel is to provide an assessment of the quality of the proposals received, and to make a recommendation to the CSIR National Laser Centre on whether proposals should be funded. The panel will consist of experts from industry, universities and international members. The assessment will primarily focus on scientific merit, capacity building, output, and impact as presented in the proposal. **Applicants are encouraged to ensure all the necessary information is captured in the proposal that is required for the review panel to do a fair assessment of the proposed work.**

Continuation applications will also be assessed on progress; hence progress reports submitted to the CSIR NLC will form part of the application and evaluation process.

It will be expected from applicants to the Rental Pool Program to present their research proposal to the independent review panel during February 2022. Where necessary the CSIR will provide mobility support to applicants that made the short list for projects to be reviewed by the independent review panel.

The following aspects are important to consider when submitting a RPP application.

2.6.1 Quality of the RPP application

Applicants are STRONGLY discouraged to copy and paste large section of text from previous applications or progress reports. The peer review panel notices this and feel that this is an indication that applicants are not respecting the peer review process. Applicants and document authors are encouraged to rather keep the inputs and discussion short and relevant to the section that they are completing, without the necessity to generate large amounts of text.

Applicants are also encouraged to follow the instructions as provided in the proposal or the annual progress report meticulously, to ensure that the review panel has the correct information available when assessing the information provided.

2.6.2 Management plan

The management plan submitted as part of the application must be a clear execution-able plan for the project. The plan must include defined major project activities that will be executed as part of the project plan. For each activity, a start and end date must be provided, and resources (collaborators, team members, students and equipment) needs to be assigned to each of the activities defined. Each of the activities should also have a clearly defined deliverable. It is a requirement that a detailed Gantt chart, which corresponds to the management plan is submitted as part of the application.
The management plan should also address any equipment related activities, including specific maintenance requirements that needs to be highlighted to the CSIR, as well as contingency planning around equipment breakdowns. The CSIR will take responsibility for major repair and maintenance tasks, but it is expected from the grant holder and the institutions to plan and provide routine maintenance services on equipment provided as part of the grant.

2.6.3 Scientific Merit

This section should clearly articulate the scientific background, and demonstrate through the proposed research a high level of scientific and technical excellence. Scientific outputs and impact needs to be qualified.

In progress reports grant holders and applicants are encouraged to also list publications which have been submitted, but not yet accepted for publication to provide the review panel with an accurate view of progress on the project.

2.6.4 Collaborations

The proposal format request information on collaborations. A list of collaborators should be included, which clearly articulates the contribution of each of the collaborators to the program. The information provided must be presented in such a way that will allow reviewers to assess the expertise and experience of the listed collaborators.

It is important to also list all the members of the research team who constitute this collaboration. Be sure to highlight the PI track record, staff involvement, student involvement, post docs, technical support and external collaborations (institutional, regionally, nationally and internationally).

2.6.5 HR Development

In the section on HR development the applicant needs to list all students that will work on the project. It is important **and compulsory** to identify the main supervisor and co-supervisor if applicable, as well as provide the thesis or research project title on which the student is working. Generic thesis titles or research project titles are not acceptable.

Attention should be given to accurately reflect on student demographics. It is expected of the applicant to demonstrate that this project will actively seek to involve South African black and female students.

2.6.6 Relevance, Impact and Commercialisation

The proposal should clearly articulate the scientific, social, economic and environmental relevance and impact of the proposed work.

The proposal should provide information on the PI's plan for commercialisation for the research undertaken. The proposal should provide a description of a commercialisation route, as well as identify possible commercialisation partners. Even if there are no formal commercialisation strategy or commercialisation plan for the proposed work, applicants are encouraged to offer some evidence that commercialisation of the technology is being consider. This evidence can by direct, or indirect of even anecdotal evidence indicating that there is some consideration for commercialisation of the technology. Leaving this section of the proposal blank is not acceptable.

2.7 Laser safety

Laser safety is of upmost importance. The proposal should clearly nominate a Laser Safety Officer, and plans around laser safety should be included in the management plan section of the proposal. For successful applicants, it will be expected that

- The nominated laser safety officer needs to be trained;
- That all users of the equipment are provided with laser safety training.

- It should be noted that it is preferred if permanent members of the research team be assigned the role of laser safety officer.

2.8 Proposal assessment criteria

Assessment criteria will be used to maintain consistency during assessment of research proposals, each criterion is assigned a weight (see **Table 2**).

Criterion	Details	Weight
Management Plan 15%	Feasibility & Efficiency of management Plan	10%
	Presentation of the proposal	5%
Scientific Merit 40%	Scientific/technical excellence	15%
	Scientific impact/outputs	25%
HR Development 25%	Research students and Post-Doctoral Fellows	5%
	Black & female students	15%
	PI track record	5%
Collaboration network 10%	National, regional and intra-institutional network	6%
	International network	4%
Relevance & Impact 10%	Scientific, Social, Economic and Environmental Impact	4%
	Commercialisation plan	6%

Table 2: Assessment criteria

Based on the recommendations from the review panel, the CSIR NLC will do budget allocations, rank the proposals received and make a decision on the projects which will be funded in the next funding cycle.

2.9 General comments

It is important that proposals submitted are concise, and only provide information relevant to what is requested in the proposal template. Information provided needs however to be comprehensive, to allow the reviewers an opportunity to accurately assessment the potential of the proposal. The review team will only assess proposals on what is written in the proposal document.

Applicants and grant holders should also respect the review process, and the CSIR appointed review panel. Applicants and grant holders are encouraged to not copy and paste sections from one part of the proposal or annual progress report to another.

Based on the recommendations from the review panel, the CSIR NLC will do budget allocations, rank the proposals received and make a decision on the projects which will be funded in the next funding cycle.

PART 3: MANAGEMENT OF GRANT AND EQUIPMENT

3.1 Contracting

A CSIR Rental Pool Grant contract will be established that contains the clauses and requirements for the management of the grant. The contract addresses responsibilities, intellectual property issues, ownership of the equipment, as well as the financial arrangements associated with the project. The contract is between the CSIR National Laser Centre and the host institution of the applicant.

The contract will be an annual contract, and will be updated on an annual basis through an amendment to the contract for the funding allocation in subsequent years **subject to the submission of an annual progress report, as well as a favorable review of the progress report.**

3.2 Reporting and use of equipment

On accepting the award (signing the contract), the grant-holder will be required to deliver on the annual research plan that formed part of the accepted application. An annual review meeting is scheduled where all grant holders are required to report on progress. Attendance of this meeting is compulsory.

At the end of the calendar year the grant-holder will be required to prepare and submit an annual report to the CSIR NLC. The annual report must address project progress, delivery on milestones, project outputs and outcomes as presented in the research plan. In instances where the original project application was a multi-year proposal, the annual progress report will be used in an evaluation process to determine whether the project will continue in the next FY.

3.3 Payment of Grants

The CSIR NLC will take responsibility for the acquisition of new equipment, shipment of equipment to universities, installation and maintenance of the equipment supplied under the agreement. Claims for payments of travel costs, consumables, and small auxiliary equipment approved as part of the project should be submitted to the CSIR NLC for payment. Claims should be submitted for attention of Mr. Thomas du Plooy (tiduplooy@csir.co.za).

Invoices for payments should be addressed to:
The CSIR National Laser Centre
PO Box 395
Pretoria
0001.

All invoices should reflect the CSIR's VAT no. 4470114283

All invoices should also reflect the unique reference number assigned to the project, and available on the Rental Pool Grant contract, or from the CSIR NLC.

No payments will be processed unless proof of expenses accompanies the invoice submitted to the NLC.

3.4 Assistance

Should you require clarification on any of the processes, criteria or plans presented in this manual please do not hesitate to contact Thomas du Plooy at 012 841 3511 or 082 443 1128, email nlcrentalpool@csir.co.za

Appendix 1

A list of equipment accessible at the CSIR NLC facility.

Nd: YAG Pulsed Lasers
Nd: YAG Laser Ablation system for material processing applications (DML40S - Deckel Maho Gildemeister)
5kW IPG fibre Laser System with Robot manipulation (For laser material processing)
CW CO_2 Lasers (up to 100W)
LENS 850 R Additive Manufacturing system
5kW CO_2 Laser System (For laser materials processing)
Laser systems for Spectroscopy
Low output visible lasers
Low output near infrared lasers
Clark Femto Second Laser System (1mJ, 1 kHz)

Appendix 2

CSIR NLC research focus areas in 2020/2021.

Biophotonics research
Solid state laser development research (1 and 2 micron source development)
Laser materials processing research (Additive Manufacturing, Laser welding/cladding)