



SOUTHERN AFRICAN LARGE TELESCOPE

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SALT Foundation (Pty) Ltd
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Request for Proposal to build the SALT High Resolution Spectrograph (SALT HRS)

The SALT Foundation, a consortium of institutions in South Africa, Germany, Poland, the United States, New Zealand and the United Kingdom, has over the past six years been engaged in the construction of the Southern African Large Telescope and two First Generation instruments, the SALT Imaging Camera (SALTICAM) and the Robert Stobie Spectrograph (RSS; formerly known as the Prime Focus Imaging Spectrograph, or PFIS). SALT was inaugurated on 10 November 2005 and is now in the process of commissioning, expected to take ~12 months.

A total of three First Generation instruments were envisaged, funded from a combination of cash from the telescope and instrument construction budget and "in-kind" contributions from the partners involved in building the instruments. The latter are referred to as non-cash components of the budget and were funded by the partner institutions concerned, with the understanding that the value of the contributions would eventually count for observing shares on SALT.

To date only two of the First Generation instruments have been built (SALTICAM and RSS) at a total cost to completion estimated (final commissioning costs are still outstanding) at \$US 585,136 and \$US 4,718,360, respectively. Cash funds amounting to \$US 1,128,752 were expended on these instruments, while the balance was provided by in-kind contributions for RSS from the University of Wisconsin-Madison and Rutgers University, two of the three partner institutions involved in building RSS.

The consortium has also funded the design, by the University of Canterbury in New Zealand, of the SALT High Resolution Spectrograph (SALT HRS), which successfully concluded its Critical Design Review (CDR) in April 2005. This instrument is a fibre-fed dual-beam R4 échelle spectrograph, with an expected resolution of $R = 17,000$ to $70,000$. It is a single object spectrograph, but capable of accurate background subtraction by using pairs of optical fibres. The Fibre Instrument Feed is a separate instrument, currently under construction, designed to service SALT HRS and possibly other future fibre-fed instruments. The total estimated cost of the SALT HRS, following the CDR and subsequent changes recommended by the Review Panel, was \$US 2.67M (including contingency).

Originally it was anticipated that the University of Canterbury would lead the effort to build SALT HRS, and committed a total "in-kind" contribution of \$US 633K, which included the cost of the design studies and a major fraction of the labour costs involved in the fabrication. The cash contributions (e.g. for major hardware purchases and subcontracts) were to be provided by the SALT Foundation. However, by the time of the completion of the CDR phase, only an amount of \$US 250K was available for the cash components. This lack of full funding for SALT HRS led the SALT Board of Directors to issue a General Offer of Participation in June 2005, in order to raise the remaining ~\$US 1.8M required to fund the construction of SALT HRS. While several initiatives, which are still on-going, followed from this offer, there still remains a funding shortfall for SALT HRS, although existing SALT partners have raised further funds, now totalling ~\$850K.

In light of the lack of total funding needed to build SALT HRS, the University of Canterbury have decided not to sign a contract to build SALT HRS, or any of its components, at this time. The SALT Foundation are very desirous to see SALT HRS completed at the earliest opportunity, and believe that sufficient funds exist to begin its construction and that there is little risk that the remaining funding will not be secured. Therefore the SALT Foundation has elected to issue this open Request for Proposal to construct, assemble and commission SALT HRS following the approved CDR design and at a cost within the original estimate of \$2.67M. In addition, the successful bidding institution would be expected to enter into a contract with the SALT Foundation, similar to those entered into for the building of other instruments and telescope subsystems. While it is expected that the

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Prof C Clemens², Prof. P. Cottrell⁴, Prof. R. Fesen², Prof. W. Kollatschny³, Prof. R. Griffiths²,
Dr D. O' Donoghue⁷, Prof. M. Sarna⁵, Prof. T Williams²,

¹British, ²American, ³German, ⁴Australian, ⁵Polish, ⁶South African, ⁷Irish



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SALT Foundation will provide the necessary cash funding to built SALT HRS, the possibility exists for institutional in-kind contributions to be made and valued in terms of observing time on SALT.

The attached documents include an overall description of SALT HRS, taken from the CDR document package, plus a draft of the SALT HRS construction contract. The current design of SALT HRS is co-owned by the SALT Foundation and the University of Canterbury and has been arrived at by a rigorous peer review process. External experts Drs B. Delabre (ESO), H. Dekker (ESO), S. Sheckman (Carnegie Observatories) and D. Walker (UCL), and members of the SALT Science Working Group (SSWG), comprised the PDR and CDR Review Panels, which thoroughly vetted the final SALT HRS design. The SALT Foundation is therefore confident that the basic CDR design will fulfil the scientific goals of SALT HRS, and wishes to pursue constructing SALT HRS using this design.

Persons who, on behalf of their institutions, may wish to engage in discussions relating to this offer should contact the SALT Project Scientist or any of the members of the SALT Board's Executive Committee as soon as possible:

Dr David Buckley (SALT Project Scientist):

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Professor Rob Fesen (Dartmouth College):

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Letters of Intent should be received by the SALT Project Scientist by 30 June 2006. Detailed proposals must then be submitted no later than 15 September 2006.

Yours faithfully

Dr K. Mokhele

Chairman of the Board: SALT Foundation (Pty) Ltd

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