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North American Proposals for Development Upgrade Studies for ALMA

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North America issued a call for proposals for ALMA development studies on November 21, 2011. The call generated 32 responses in the form of Notices of Intent (NoI) to submit a proposal. The study proposals were due February 13, 2012. 21 submissions were received. Seventy-seven investigators associated with twenty-six institutions responded to the call.

The review panel consisted of highly qualified members of the astronomical community who were proposed by the ALMA North American Science Advisory Committee membership. None of the review panel members are affiliated with the NRAO to avoid conflict of interest. They have interests in science, software, and various hardware components including mm-wave instrumentation. A goal in the identification and recruitment of panel members was to capture the diversity of the community. On January 26, a list of proposed reviewers was submitted to the NSF for its consent. NSFs consent and additional recommendations were received on January 31. A panel of nine reviewers were in place when the proposals were received. Summaries of the titles, investigators and affiliations of the proposers were circulated among the reviewers to determine conflicts of interest which were not apparent. Proposals were assigned to reviewers for whom no conflict of interest was determined. Most reviewers were assigned a list of 6-12 proposals in early March, at which time the documents were distributed via a secure webpage to them. Responses were due 26 March; all were in hand by 29 March, at which time the review scores were renormalized and combined into

a uniform ranking. A spreadsheet was produced illustrating the ranking, giving individual review scores anonymously, along with mean scores and standard deviations for both reviewers reports and for the projects. A dividing line was suggested for the top ranked proposals, with the division at the point at which the requests met the budget of $500,000. The proposals were also scored by throwing out individual high and low scores. This left fewer scores but the list and the division line were changed only slightly.

Reviewers attended a telecon on 30 March during which the results of the ranking were discussed. Attention centered on the division line between the top ranked and lower ranked proposals. Non-hardware proposals were also discussed; three of those in particular were among the highly scored proposals though only two were above the funding cutoff. Reviewers were given a final chance to submit revisions to their reviews; one was received.

Proposals were then reranked (there was little change as only one score had been revised). The final ranked list is given in the table. Some titles have been shortened for ease of presentation. Investigators and their institutions are listed, along with the amount of funding requested. The table ends where accumulated funding requests does not exceed funding available. Eight projects fall above the the division where accumulated funding requests does not exceed funding available.

We propose to fund these eight most highly ranked proposals according to the process outlined in 'Management Plan for ALMA Development Studies in North America'.

Table 1. Summary of Projects and Investigators

ID	Short Title	PI and co-I	Institutions
D06 (20)	Second Generation Receiver for ALMA Band 6	A.R. Kerr, J. Mangum, SK Pan, A.W. Lichtenberger, E. Bryerton, J.E. Effland, M. Morgan, M.W. Pospieszalski, K. Saini, S. Srikanth	NRAO, UVa
D10 (17)	Design Study for Production of the Band 2 Cartridges	Eric Bryerton, D. Frayer, A. Remijan, S. Schnee, M. Morgan, Lucy Ziurys, Gene Lauria, R. Freund	NRAO U. Az..
D20 (31)	Millimeter/Submillimeter VLBI with ALMA	J. Kern, W. Brisken, V. Fish, S. Doeleman	NRAO, Haystack
D08 (18)	Increase the ALMA Data Rate	B. Glendenning, M. Lacy	NRAO .
D23 (32)	Ultra-wideband quantum limited amplifiers for receiver frontends	D. Woody, S. Muchovej, Peter Day, J. Lamb	CalTech
D18 (29)	A Visualization Portal for ALMA Data	E. Rosolowski, R. Taylor, A. Goodman	U.B.C. (Okanagan), U. Calgary, Harvard
D21 (36)	Unleashing Large Dataset Science	JL. Mundy, L. Looney, J. Kern,A. Varshney, A. Leroy, D. Freidel	U. Md., U. Ill. NRAO
D07 (15)	ALMA Band 1 Receiver Development Study	Ho, Hwang, Koch, Kemper, Yeung, Claude, DiFrancesco,Reyes, M. Pospieszalski, K. Saini, S. Srikanth, Bronfman	ASIAA, HIA, NRAO, U. Chile