1011-05-138 **Mark S MacLean*** (macleanm@seattleu.edu), Seattle University, 901 Twelfth Avenue, P.O. Box 222000, Seattle, WA 98122-1090, and **Paul M Terwilliger**. *The subconstituent algebra of a bipartite distance-regular graph; thin modules with endpoint two.* Preliminary report.

We consider a bipartite distance-regular graph Γ with diameter $D \geq 4$, valency $k \geq 3$, intersection numbers b_i, c_i and eigenvalues $\theta_0 > \theta_1 > \cdots > \theta_D$. Let A_i denote the i^{th} distance matrix of Γ. Fixing a vertex x, let E_i^* denote the projection onto the i^{th} subconstituent of Γ, and let T denote the Terwilliger algebra of Γ with respect to x. Let W denote a thin irreducible T-module with endpoint 2. Observe E_2^*W is a 1-dimensional eigenspace for $E_2^*A_2E_2^*$; let η denote the corresponding eigenvalue. Let $d = \lfloor D/2 \rfloor$. It is known $\tilde{\theta}_1 \leq \eta \leq \tilde{\theta}_d$ where $\tilde{\theta}_1 = -1 - b_2b_3(\theta_1^2 - b_2)^{-1}$, $\tilde{\theta}_d = -1 - b_2b_3(\theta_d^2 - b_2)^{-1}$. For $\tilde{\theta}_1 < \eta < \tilde{\theta}_d$ we obtain the following results. We show the dimension of W is $D-1$. We find two bases for W. We show each basis is orthogonal (with respect to the Hermitean dot product) and we compute the square norm of each basis vector. We find the matrix representing the adjacency matrix with respect to each basis. We find the transition matrix relating our two bases for W. (Received August 22, 2005)