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The su(1,1) symmetry of tripartite entangled Gaussian states[1] BARRY SANDERS, ZAHRA SHATERZADEH YAZDI, PETER TURNER, University of Calgary — Two-mode squeezed light has been central to theoretical and experimental studies of continuous variable quantum information processing and to quantum foundations. More recently the generalization of these states to three-mode squeezed light has been achieved in the context of quantum teleportation [1] and state sharing [2]. Theories are typically developed in Gaussian or position representations, but we have discovered that all tripartite entangled Gaussians states of these types are in fact su(1,1) coherent states with respect to an intriguing three-boson realization of su(1,1) first noticed by Sebawe Abdalla et al [3]. This symmetry provides insights into the useful properties of these states and suggests ways to generalize theories and applications of multipartite entangled Gaussian states. [1] A. Furusawa et al, Science **282**, 706 (1998). [2] A. M. Lance et al, Phys. Rev. Lett. **92**, 177903 (2004). [3] M. Sebawe Abdalla et al, Eur. Phys. J. D **13**, 423 (2001).

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