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Gravitational Waves and SGR Bursts LEO SINGER, California Institute of Technology, LIGO SCIENTIFIC COLLABORATION, VIRGO COLLABORATION — Soft gamma repeaters (SGRs) are nearby, they burst repeatedly and sometimes spectacularly, and their burst emission mechanism may involve neutron star crust fractures and excitation of non-radial modes which could emit gravitational waves (GW). We present recent searches for GW associated with SGR bursts, including a new individual burst search of SGR events which occurred between 2006 November and 2009 June. The search examines burst events from six magnetar sources, including one (SGR 0501+4516) which is likely less than 1 kpc from Earth, and uses data from five GW detectors. Due to the proximity of SGR 0501+4516 we are able to probe GW energies more than an order of magnitude lower than previous SGR GW searches. We present results from SGR GW searches and discuss the emerging astrophysical context.

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