prop_num	pi_fname	pi_lname	Title	Abstract
151102	ADDY	EVANS	SEARCHING FOR INVERSE COMPTON EMISSION FROM GLOBULAR CLUSTERS WITH FERMI-LAT AND HAWC	We propose to search for evidence of high-energy inverse Compton scattering (ICS) in the gamma-ray spectra of globular clusters (GC) using data from Fermi-LAT and the High Altitude Water Cherenkov (HAWC) Observatory. GCs are efficient MSP producers and can be used to study high-energy emission from MSPs. Of particular interest is the search for extended, TeV-scale emission coincident with MSPs, which has yet to be robustly detected. We propose to search for this high-energy component with two stacked analyses: (1) a stacked analysis of all Fermi-bright GCs using Fermi-LAT data and (2) a joint stacked analysis of GCs in the HAWC sky using Fermi-LAT and HAWC data. The results will inform our understanding of the physical origins of high-energy emission from GCs and their MSP populations.
151078	MARCO	AJELLO	THE COSMIC HISTORY OF LIGHT (Large Project)	The extragalactic background light (EBL) encodes the emission of every star, galaxy and black hole that was ever active in the observable Universe. It is thus of critical importance to understand galaxy evolution and stellar activity, but as of today it remains still highly uncertain. This program leverages state-of-the-art tools to provide a measurement of the EBL optical depth at ~24 epochs across the 0<z<4.3 redshift range. This measurement will be used together with luminosity and mass density galaxy data, the fraction of neutral hydrogen and TeV EBL optical depths to obtain a precise characterization of the EBL evolution. This program will measure the UV background shortly after the re-ionization and the star-formation rate up to z~10.

151063	MATTHEW	KERR	BUILDING THE FERMI PULSAR TIMING ARRAY (Large Project)	Radio pulsar timing arrays (PTAs) may have detected a long-awaited hint of low-frequency gravitational waves. However, the candidate signal could have other origins, including residual effects from propagation through the ionized interstellar medium. Gamma rays are immune to such effects and we show that they provide sensitivity to gravitational waves that is on par with radio PTAs. This surprising result is due to the long, uninterrupted Fermi dataset and its many detections of millisecond pulsars (MSPs). We propose to establish the Fermi Pulsar Timing Array (FPTA) and develop its capabilities, improving its sensitivity, expanding its ensemble of MSPs, developing its analysis software, regularly releasing its data to the community, and writing key publications.
151074	KE	FANG	UNVEILING THE GEV COUNTERPARTS TO ULTRAHIGH ENERGY GAMMA-RAY SOURCES WITH FERMI-LAT	A dozen ultrahigh-energy (UHE; exceeding 100 TeV) gamma-ray sources have recently been discovered by air shower observatories. Most of them are unidentified sources that either enclose or reside near a pulsar. We propose to analyze the off-pulse Fermi-LAT data to search for lower-energy counterparts to the observed UHE gamma-ray sources. We will compare physical models with the multi-wavelength observation of individual sources to investigate the origin of the gamma-ray emission. We will also carry out a population study based on the properties of the UHE emission and gamma-ray pulsars. This project will advance the understanding of particle acceleration and interaction in pulsars and wind nebulae, and increase our knowledge about the newly discovered UHE gamma-ray sky.

151094	DANIEL	KOCEVSKI	DEVELOPING AN OPEN SOURCE COHERENT SUB-THRESHOLD TARGETED SEARCH OF GBM DATA	We propose to implement a version of the GBM targeted search as an open source tool which would be made available to the community. The new version would make use of the newly available GBM Data Tools, which provide a comprehensive and modern application programming Interface for GBM data. The use of the Data Tools would provide a means by which the targeted search could be applied to GBM-like data from other instruments, including a range of SmallSats funded to fly in the coming years. We also propose to extend the joint likelihood analysis underlying the search to be used with data collected across multiple missions, combining the sensitivities of all GBM-like detectors to form a truly coherent multi-mission sub-threshold search to provide a ever deeper search of the gamma-ray sky.
151041	PAUL	DUFFELL	NUMERICAL MODELING OF OFF-AXIS GRB JETS	Understanding gamma ray bursts (GRBs) is among the primary goals of Fermi. Off-axis GRBs provide a powerful new handle on constraining GRB scenarios. We propose to build a set of numerical tools to construct off-axis GRB outflows "from engine to afterglow". By performing relativistic hydrodynamics simulations coupled with radiative transfer calculations post-processing the hydrodynamical output, we will produce off-axis light curves and spectra based on any hydrodynamical initial conditions. We propose to compute light curves and spectra from these simulations and compare with observed off-axis GRB afterglows such as GRB170817A. These models will be valuable for interpreting GRB prompt and afterglow data from multi-messenger events.
151053	MATTHEW	LISTER	INVESTIGATING GAMMA-RAY EMISSION FROM YOUNG RADIO GALAXIES	We propose a joint Fermi-VLBA study to investigate small scale jet structure and high energy emission in a sample of ten young AGN jet systems. The sample AGN are distinguished from other known young radio galaxies by their atypically flat radio spectra and unusually bright radio cores, and two have already been detected by Fermi LAT. Our study will lead to a better understanding of AGN life cycles, as well as the gamma-ray emission mechanisms in misaligned AGN and newly emergent relativistic jets.

151098	PABLO	PENIL	SEARCH FOR LONG-TERM VARIABILITY IN BLAZARS	Blazar emission is highly variable at different wavelengths, becoming a periodic behavior in some cases. However, periodicity detection is still an open issue but crucial for the understanding of the blazars. To improve the study about periodicity, we will use >14 years of gamma-ray data provided by the Fermi Large Area Telescope (LAT) to study the light curves of more than 3000 blazars systematically. Recently, a long-term flux raising trend has been detected in the emission of PG 1553+113, which can be interpreted as evidence of a binary supermassive black. Consequently, we will perform the first systematic search for long-term trends in the same sample. This study will provide the first detection and characterization of long-term trends in Fermi-LAT blazars.
151003	BRIAN	METZGER	FROM GEV TO TEV GAMMA-RAY EMISSION IN NOVAE	The discovery by Fermi LAT of GeV gamma-rays from classical novae illustrates that shocks and high energy particle acceleration are common in nova outflows. We will extend our recent multi-dimensional simulation work on radiative shocks in novae to calculate their multi-wavelength emission up to the highest energy gamma-rays. By combining the distribution of inclination angles across the shock front relative to the upstream magnetic field with the results of particle-in-cell simulations, we will predict the particle acceleration efficiency and compare to those observed. Particular focus will be placed on calculating the maximum particle energy, to address the recent H.E.S.S discovery of TeV emission from RS Oph
151135	MEGAN	DECESAR	NEW SEARCHES FOR RADIO MILLISECOND PULSARS IN FERMI SOURCES WITH THE 4FGL-DR3 CATALOG	Fermi has had a spectacular impact on pulsar research, especially for millisecond pulsars (MSPs). Since 2008, Fermi has led to the discoveries of 115 MSPs in targeted radio searches of unassociated sources. We aim to continue this amazing MSP discovery pace using the Green Bank Telescope (GBT) and the most up-to-date LAT point source catalog, the 4FGL-DR3, which covers 12 years of LAT data and contains over 2000 unassociated sources. We have identified 34 sources as especially strong MSP candidates, based on comparisons between their gamma-ray spectral and variability characteristics and those of the known radio+gamma-ray MSP population. We request 51 hours of GBT time to search these sources for radio pulsations.

151089	AMANDA	STEINHEBEL	A SEARCH FOR DARK MATTER IN ULTRA-DENSE BLACK HOLE ENVIRONMENTS	The identity of the dark matter (DM) remains an open question. To address this problem, we propose searching for a DM particle whose annihilation signal appears as two gamma-rays. Ultra-dense DM environments formed around supermassive black holes (SMBH) increase the probability of DM annihilation, which leads to a stronger signal flux occurring around these objects. We will conduct a stacking analysis of radio-quiet elliptical galaxies: these objects are numerous, host SMBHs, and represent an ideal environment with little gamma-ray background. We estimate that we can set constraining upper limits on the DM annihilation cross section, which are competitive with those set by the dwarf Spheroidal galaxies, by stacking only 22 elliptical galaxies.
151128	JAMIE	KENNEA	IMPROVING THE LOCALIZATION OF GBM GRBS WITH SWIFT/BAT EVENT DATA IN CYCLE 15 / O4	We seek to improve the localization of \fermi/GBM detected GRBs. Utilizing GBM alerts, \swift\ is commanded to dump BAT event data, usually discarded on board, to the ground. These data will be analyzed for evidence of a co-detection of the GRB by BAT. If detected, then we will utilize BAT data either to localize the GRB to $\sim$arc-minute resolution (if within BAT FOV), or if outside the BAT coded FOV, combine information from GBM and BAT to significantly reduce the GBM error region. We estimate obtaining arc-minute localizations for 15 GBM GRBs per year, in addition to those co-detected by BAT, and many more will allow us to significantly reduce the GBM error region. This is vitally important for the upcoming O4 GW detector run which overlaps Fermi Cycle 15.
151048	CHRIS	KARWIN	CHARACTERIZING THE GAMMA-RAY EMISSION FROM LOW-LUMINOSITY AGN	A majority of the active galactic nuclei (AGN) in the local Universe are classified as low-luminosity AGN (LLAGN). Although gamma-ray emission is predicted from both the jets and disks of LLAGN, to date only 4 significant sources have been detected. We therefore propose to conduct a stacking study of the subthreshold LLAGN from the Palomar survey, as well as a detailed SED modeling for all sources. Our preliminary analysis shows that our program will result in a brand new detection of a significant source, as well as a significant detection of the subthreshold population. Moreover, our program will very likely establish a radio-gamma scaling relationship that may extend a similar relationship in FR I and FR II radio galaxies by ~100 times lower in radio luminosity.

151086	CHANGAM	RAJAGOPAL	MEASUREMENT OF THE ISOTROPIC DIFFUSE GAMMA-RAY BACKGROUND	The isotropic diffuse gamma-ray background (IGRB) comprises all extragalactic diffuse emission and is found to be approximately isotropic on large angular scales. The primary goal of this work is refinement of the IGRB measurement, employing 8 years of pass8 Fermi data and the 4FGL source catalog. A reduction of the systematic uncertainties arising from the DGE emission will be achieved through improved modeling of this emission, as well as a careful selection of analysis regions. A few other improvements including, wider energy range (between 50 MeV - >1 TeV), larger dataset, more powerful fitting techniques etc., will also be achieved in the current analysis.
151129	THOMAS	HUMENSKY	EXPLORING SHOCK ACCELERATION IN NOVAE AT HIGH AND VERY HIGH ENERGIES	The most striking indicator of the important role played by shocks in novae has been the discovery by Fermi-LAT of >100 MeV gamma rays, observed at times coincident within a few days of the optical peak and lasting a few weeks, from more than 15 novae, both classical and symbiotic, over the duration of its mission. Recently, RS Ophiuchi was detected as well by both H.E.S.S. and MAGIC in the very high energy (VHE; E > 100 GeV) range, demonstrating the complementary power and critical importance of IACT observations for constraining the high-energy end of a nova's spectrum. Here, we propose to analyze LAT data for all Galactic novae, with dedicated daily monitoring of T CrB (similar in nature to RS Oph and due for an outburst), and to take VERITAS observations of promising novae.
151034	JORDAN	EAGLE	CHARACTERIZING GAMMA-RAY EMISSION FROM PULSAR WIND NEBULAE WITH THE FERMI-LAT	Pulsar wind nebulae (PWNe) are some of the brightest and most energetic sources detected in the Milky Way Galaxy, defining the majority of TeV sources detected by Cherenkov Telescopes. As such, PWNe provide a direct view to some of the most extreme Galactic environments, which may be responsible for the production of particles to cosmic ray energies. Taking advantage of the latest event reconstruction update for Fermi, we propose a systematic search for MeV-GeV PWNe targeting the locations of known PWNe identified in other wavelengths. A second approach searches for new PWNe in the off-pulse phases of Fermi-detected pulsars. New detections will be combined with available multiwavelength data and semi-analytic modeling to determine the underlying relativistic particle spectra.

151121	MATTHEW	BARING	COMPTONIZING WINDS IN MAGNETAR GIANT FLARES	Fermi's Gamma-Ray Burst Monitor (GBM) has enhanced magnetar science via observations of their bursting activity. This legacy includes the exciting discovery in 2020 of an extragalactic magnetar giant flare (MGF) from NGC 253. This proposal addresses these topical transients, simulating radiative transfer in an evolving electron-photon cloud, modeling the establishment of soft gamma-ray spectra in MGFs using a Monte Carlo approach. The guaranteed high Thomson opacity seeds polarization-dependent anisotropic Comptonization. Given a prompt injection at the polar surface, magnetospheric radiation transport and energy exchange between pairs and photons will be tracked on open field lines, using the evolving Fermi-GBM spectra for GRB 200415A to constrain the energetics and dynamics.
151038	CHRIS	KARWIN	A LEGACY ANALYSIS OF THE MILKY WAY DWARFS	Upper limits (ULs) on the dark matter (DM) annihilation cross section from gamma-ray searches in the Milky Way dwarf spheroidal satellite galaxies (dSphs) remain one of the most robust and stringent constraints from indirect DM searches. Specifically, they are crucial for constraining DM interpretations of the Galactic center excess. Due to the accumulation of over 14 years of data (at the start of Cycle 15), an improved LAT dataset, a larger number of dwarfs, and a robust analysis pipeline, now is an ideal time to conduct a comprehensive legacy analysis of the dSphs. Compared to the last comprehensive analysis of all confirmed and candidate dSphs, we expect that below ~100 GeV the statistical sensitivity of the ULs will be improved by a factor of ~3.

151004	SVETLAN/	JORSTAD	STUDY OF BLAZAR HIGH ENERGY EVENTS WITH OPTICAL POLARIMETRY AND PHOTOMETRY	We propose to monitor optical linear polarization and flux (BVRI bands) of 52 gamma-ray AGN 8-10 nights per month at a ~2m telescope to build a database of polarization parameter behavior during gamma-ray quiescent and flaring states. We will construct gamma-ray and optical light curves and polarization curves to search for correlations between gamma-ray and optical flux and polarization variations, analyze spectral index evolution, and study magnetic field properties in optical emission regions at different gamma-ray activity states. We will include new sources in the sample based on Fermi, VHE, and neutrino alerts. This information will lead to important insights into the particle acceleration mechanisms and locations of gamma-ray emission sites in AGN.
151095	ABE	FALCONE	SYSTEMATIC SEARCH FOR X-RAY COUNTERPARTS OF NEW 4FGL-DR3 UNASSOCIATED SOURCES WITH SWIFT: NEW BLAZARS, PULSARS, AND MORE	We propose to use Swift to find X-ray and UV/opt. counterparts of new unassociated 4FGL-DR3 Fermi-LAT sources. Prior programs led to Swift observations of 261,199, 600, & ~750 Fermi unassociated sources from prior 1,2,3,4FGL catalogs respectively. Likely X-ray counterparts are found in ~1/3 of these. We propose >200(!) new observations of 4FGL-DR3 unassociated sources. These new data will determine properties, and ~5 arcsec positions, of all detected X-ray sources in the LAT regions, contributing to identification, classification, and follow-up. This proposal supports the large analysis and interpretation task, which will require additional data reduction software. The Swift PI commits to the Swift observing time. Reduced data will be made publicly available for all to analyze.

151097	KAYA	MORI	A GEV SURVEY OF TEV PULSAR WIND NEBULAE AND HALOS: PROBING THE ORIGIN OF GALACTIC PEVATRONS AND POSITRON EXCESS	The proposal seeks a unique opportunity to collect legacy Fermi-LAT data and explore pulsar wind nebula (PWN) astrophysics at the deepest level, in conjunction with recently obtained X-ray and TeV data. Our targets represent a diverse class of PWNe: 6 middle-aged PWNe (including PeVatron candidates detected by LHAASO and HAWC) and 6 new TeV halos associated with relic PWNe. Given 14 years of the LAT data, we can reach sufficient sensitivity to test multi-wavelength SED models for the PWNe (with GeV spectral data uniquely determining their intrinsic electron energy distribution) and to detect GeV counterparts of the new TeV halos. The proposed Fermi-LAT analysis will allow us to probe the particle acceleration mechanisms in the middle-aged PWNe and the origin of the positron excess.
151100	FRANK	SCHINZEL	REVEALING A MISSING POPULATION OF GAMMA-RAY PULSARS	With more than 300 g-ray pulsars detected by Fermi and an unabated pace of pulsar discoveries, it has long been assumed that there are few new radio-loud pulsars to be found in the Galactic plane (GP). The 4FGL-DR3 catalog however presents a doubling in the number of pulsar-like unassociated g-ray sources (UAS) to about one quarter of all detected GP sources. It is our hypothesis that the growing population of UAS in the GP are in fact the missing radio-loud young, energetic pulsars that are hidden from standard pulse searches by interstellar scattering. We propose to overcome this limitation by observing with the VLA a sample of steep-spectrum radio sources found in UAS to detect circular polarization, which is a clear signature for pulsars. This will allow for a concentrated follow-up.
151087	DANIEL	KOCEVSKI	THE FERMI LIGHT CURVE REPOSITORY	We propose to further develop the Fermi LAT light curve repository, consisting of a public library of light curves for variable Fermi LAT sources on a variety of timescales. The Fermi LAT light curve repository aims to provide publication quality light curves on timescales of days, weeks, and months for over 1500 sources deemed variable in the 4FGL-DR2 catalog. We propose to implement a range of supplemental time-series analyses to characterize the long-term gamma-ray variability of the sources currently tracked by the repository. This includes developing a flare detection method and an algorithm to distinguish the flux attributed to flaring activity from the flux in the quiescent background (QB) of a source to estimate a baseline emission for the sources in the sample.

151045	ADAM	GOLDSTEIN	IMPROVING FERMI GBM LOCALIZATIONS WITH THE INTERPLANETARY NETWORK	We propose to maintain Fermi GBM in the 3rd InterPlanetary Network (IPN) of Gamma-Ray Burst (GRB) detectors through Cycle 15 and provide improvements to GBM localizations using IPN localization annuli. This effort facilitates identification of GRBs with associated gravitational-wave, neutrino, VHE, and other multi-wavelength signals, and aids multi-messenger and multi-wavelength follow-up observations. By maintaining Fermi GBM in the IPN, ~50% of GBM localizations can be improved, and IPN localizations utilizing multiple spacecraft aid GBM in studying systematic uncertainty of localizations and detector responses. Furthermore, the time-tagged event data that Fermi GBM provides is of crucial importance to the IPN effort of multi-instrument localization.
151114	MICHELA	NEGRO	SEEKING THE BROAD LINE REGION OF FERMI-LAT BLAZARS	Blazars are a class of radio-loud AGN with a powerful jet oriented close to the line of sight. FSRQ are a class of blazars for which the quasar core emission can dominate the optical spectrum, overwhelming the jet emission. A recent work targeting the FSRQ 4C 71.07, found evidence for an outflow emission, observing clearly blueshifted broad lines. The known orientation of blazars disc represents a unique advantage in the study of the outflows that is not available in general for AGN. We propose to study of a sub-sample of the Fermi- LAT FSRQ that show a prominent nuclear emission. We will look for outflow signatures in the broad lines and correlate possible line variability with the LAT gamma-ray emission to determine the role of the jet in the photoionization of the BLR.
151133	PAOLO	COPPI	AGILE + FERMI: SHORT-TIMESCALE GEV VARIABILITY IN BLAZARS AND ITS CONNECTION TO OPTICAL AND TEV VARIABILITY	Extreme variability is a hallmark of the blazar phenomenon, yet many published Fermi analyses rely on daily or weekly lightcurves despite the fact that both GeV and TeV blazars now have demonstrated variability on timescales as short as ~5 min. Integrating over such variability, if present, masks the underlying physical emission mechanisms and can lead to apparently unphysical spectra that cannot be fit by standard models. We aim to carry out the most rigorous analysis to date of short-term gamma-ray variability in blazars, from ~100 MeV to GeV (and TeV, if available) energies and compare it to variability at Optical/NIR energies. To remedy orbital coverage gaps in Fermi and combat systematics, we will carry out a simultaneous analysis with AGILE using a new aperture photometry pipeline.

151107	ZORAWAR	WADIASINGH	TOWARDS FIRST-PRINCIPLES MODELS OF MAGNETAR BURST FIREBALLS	Fermi GBM has a catalog of many hundreds of magnetar bursts. Recent reports of rotational-phase selection of magnetar short bursts in SGR 1830-0645 and SGR 1935+2154 strongly suggest a fixed and low altitude emission locale for magnetic flux tubes which confine the Comptonized fireball during magnetar bursts. At such low altitudes, gravitational lensing can be important and a second lensed image can result for bursts behind the neutron star for the observer. This lensing can imprint not only flux changes, but time delays and spectroscopic variation of bursts at particular rotational phases. We propose to develop the first magnetar burst fireball models accounting for curved spacetime, radiative transport in strong magnetic fields, and photon splitting.
151042	PETER	JENKE	ENHANCEMENTS AND OPERATION OF AN ACCRETING PULSAR PROGRAM USING GBM DATA	Since Cycle 1, the entire sky has been monitored for accreting pulsar using Fermi GBM data. Frequency histories, pulsed fluxes, and pulsed profiles are published on a public website. A daily blind search for previously unknown or quiescent pulsars is also performed. Source specific analyses to track the evolving pulse frequencies of all detected pulsars results in time histories of the pulse profile, pulsed flux, and frequency of these sources. Through a public website and ATels, quick-look estimates of pulsed flux and frequency are published. These are crucial for multi-wavelength observations. We propose, for Cycle 15, to provide a utility to estimate the posterior distributions for standard for estimating orbital and torque parameters for accreting binary systems.
151052	ISRAEL	MARTINEZ CASTELL	STUDYING THE EARLY-TIME EMISSION OF GAMMA-RAY BURSTS USING FERMI AND HAWC DATA COHERENTLY	The Fermi-LAT telescope has detected photons from GRBs up to 95 GeV and discovered the emergence of a high-energy spectral component above 100 MeV. Very-high-energy (VHE) emission from GRBs has been confirmed by MAGIC and HESS. However, due to slewing constraints, their observations miss the onset and peak of the VHE emission, critical for understanding the environment of GRBs, the acceleration mechanisms, and the jet and central engine properties. HAWC is a VHE observatory well suited to study the early-time emission from GRBs thanks to its wide field-of-view and continuous monitoring. This proposal looks to capitalize on recent improvements to HAWC event reconstruction and data analysis to perform a joint study with Fermi data in order to better constrain theoretical models.

151110	MILENA	CRNOGORCEVIC	LIGHT AT THE END OF THE TUNNEL: SEARCH FOR ALP DARK MATTER IN PRECURSOR EMISSION OF LGRBS	Axion-like partilces (ALPs) are a well-motivated candidate for constituting a significant fraction of cold dark matter. They can be produced in core-collapse supernovae (CCSNe) and converted into gamma-rays in the Galactic magnetic field. The ALP emission precedes that of the jet outbreak after a collapse of a massive star. With the observationally suggested causal connection between CCSNe and long gamma-ray bursts (lGRBs), a spectral analysis of the Fermi-observed lGRBs with precursor emission provides an unexplored venue in the context of ALP searches. We propose a comprehensive analysis of lGRB precursors to inform whether their origin can be explained with ALPs. In case no excess signal is reported, our approach allows for a computation of a stringent limit on the ALP-photon coupling.
151134	OLEG	KARGALTSEV	CLASSIFICATION OF 4FGL SOURCES WITH 4XMM AND MULTIWAVELENGTH SURVEYS	More than 50% of 4FGL-DR3 sources with |b|<10 deg are not firmly identified, of which 257 have X-ray coverage in a comprehensive 4XMM-DR11 catalog. We will explore the nature of particle accelerators in these gamma-ray sources using multiwavelength classification approach, which combines gamma-ray/X-ray/optical/NIR/IR/radio data and feeds them into our machine-learning pipeline. The pipeline will make use of the existing training dataset expanded to gamma-rays, IR, and radio. We expect to (1) increase the fraction of identified 4FGL sources, (2) determine a fraction of gamma-ray sources which are ``dark'' at other wavelengths, (3) learn more about the particle accelerators in gamma-ray sources, and (4) classify all X-ray sources within the selected 4FGL fields.

151001	BRIAN	METZGER	GAMMA-RAYS FROM MAGNETAR-POWERED SUPERNOVAE	Stellar explosions have been discovered with peak luminosities too high to be powered by traditional energy sources. A popular model for such "superluminous supernovae" (SLSNe) and "fast blue optical transients" (FBOTs) posits the birth of a magnetar engine. We will develop and apply a Monte Carlo radiative transfer model for magnetar-powered supernovae which self-consistently accounts for radiative processes in their wind nebula and ejecta and makes predictions for the late-time escape of non-thermal gamma-ray emission. Our results will be compared to observations of SLSNe/FBOTs with Fermi-LAT and Air Cerenkov telescopes in order to test the magnetar model. The same model will be applied to predict gamma-ray emission from long-lived magnetar remnants in binary neutron star mergers.
151070	RAFFAELL	MARGUTTI	A COORDINATED FERMI-VLA VIEW OF THE MOST EXTREME MASS-LOSS EVENTS FROM MASSIVE STARS	The recent GeV detection of SN iPTF14hls at d=150 Mpc opened up a new window of investigation on the most extreme mass-loss events. Thus motivated we propose a systematic search for GeV emission from nearby (d<150 Mpc) SN shocks interacting with a dense environment. GeV emission is predicted to originate as the SN ejecta crash into dense shells of material previously ejected by the progenitor star. We capitalize on the synergy of Fermi/LAT and VLA observations with three goals: (i) Test the supernova shock breakout through a dense wind model using GeV observations. (ii) Constrain the cosmic rays acceleration at shocks formed by the collision between the SN ejecta and the CSM shell. (iii) Deliver the first predictions of the neutrino emission associated to ordinary interacting SNe and super
151127	JAY	STRADER	UNCOVERING FERMI GALACTIC BINARIES WITH OPTICAL SPECTROSCOPY	Support is requested for a spectroscopic program to discover and characterize Galactic compact binaries among unassociated Fermi sources. Intriguing systems have already been found, new subclasses of pulsar binaries with red giant companions and a "missing link" proto-white dwarf--millisecond pulsar binary. The regular observing cadence and optical spectroscopic resources constitute a unique opportunity to add value to the Fermi mission through ground-based correlative observations.