

LSC August 2018 author list—LIGO-M1800241
11/16/2018. CQG style

B P Abbott¹, R Abbott¹, T D Abbott², S Abraham³,
K Ackley⁴, C Adams⁵, R X Adhikari¹, V B Adya^{6,7},
C Affeldt^{6,7}, M Agathos⁸, K Agatsuma⁹, N Aggarwal¹⁰,
O D Aguiar¹¹, A Ain³, P Ajith¹², G Allen¹³, P A Altin¹⁴,
A Ananyeva¹, S B Anderson¹, W G Anderson¹⁵,
S V Angelova¹⁶, S Appert¹, K Arai¹, M C Araya¹, J S Areeda¹⁷,
K G Arun¹⁸, G Ashton⁴, S M Aston⁵, P Aufmuth⁷,
K AultONeal¹⁹, C Austin², V Avendano²⁰, A Avila-Alvarez¹⁷,
S Babak²¹, S Bae²², P T Baker²³, S W Ballmer²⁴, S Banagiri²⁵,
J C Barayoga¹, S E Barclay²⁶, B C Barish¹, D Barker²⁷,
K Barkett²⁸, S Barnum¹⁰, B Barr²⁶, L Barsotti¹⁰, J Bartlett²⁷,
I Bartos²⁹, R Bassiri³⁰, J C Bayley²⁶, B Bécsy³¹, A S Bell²⁶,
D Beniwal³², B K Berger³⁰, G Bergmann^{6,7}, J J Bero³³,
C P L Berry³⁴, J Betzwieser⁵, R Bhandare³⁵, J Bidler¹⁷,
I A Bilenko³⁶, S A Bilgili²³, G Billingsley¹, J Birch⁵, R Birney¹⁶,
O Birnholtz³³, S Biscans^{1,10}, S Biscoveanu⁴, A Bisht⁷,
J K Blackburn¹, C D Blair⁵, D G Blair³⁷, R M Blair²⁷,
N Bode^{6,7}, Y Boetzel³⁸, E Bonilla³⁰, P Booker^{6,7}, C D Booth³⁹,
R Bork¹, S Bose^{40,3}, K Bossie⁵, V Bossilkov³⁷, J Bosveld³⁷,
P R Brady¹⁵, A Bramley⁵, J E Brau⁴¹, J H Briggs²⁶,
M Brinkmann^{6,7}, P Brockill¹⁵, A F Brooks¹, D D Brown³²,
S Brunett¹, A Buikema¹⁰, A Buonanno^{21,42}, R L Byer³⁰,
M Cabero^{6,7}, L Cadonati⁴³, C Cahillane¹, J Calderón Bustillo⁴,
T A Callister¹, J B Camp⁴⁴, W A Campbell⁴, K C Cannon⁴⁵,
H Cao³², J Cao⁴⁶, S Caride⁴⁷, M F Carney³⁴, M Cavaglia⁴⁸,
K Chakravarti³, S J Chamberlin⁴⁹, M Chan²⁶, S Chao⁵⁰,
P Charlton⁵¹, E A Chase³⁴, D Chatterjee¹⁵, M Chaturvedi³⁵,
K Chatziioannou⁵², B D Cheeseboro²³, H Y Chen⁵³, X Chen³⁷,
Y Chen²⁸, H-P Cheng²⁹, C K Cheong⁵⁴, H Y Chia²⁹, G Cho⁵⁵,
H S Cho⁵⁶, M Cho⁴², N Christensen⁵⁷, Q Chu³⁷, K W Chung⁵⁴,
S Chung³⁷, A A Ciobanu³², F Clara²⁷, J A Clark⁴³,
P Clearwater⁵⁸, C Cocchieri⁴⁸, R Colgan⁵⁹, M Colleoni⁶⁰,
C G Collette⁶¹, C Collins⁹, L R Cominsky⁶²,
M Constancio Jr.¹¹, S J Cooper⁹, P Corban⁵, T R Corbitt²,
K R Corley⁵⁹, N Cornish³¹, A Corsi⁴⁷, C A Costa¹¹,

R Cotesta²¹, M W Coughlin¹, S B Coughlin^{39,34},
 S T Countryman⁵⁹, P Couvares¹, P B Covas⁶⁰, E E Cowan⁴³,
 D M Coward³⁷, M J Cowart⁵, D C Coyne¹, R Coyne⁶³,
 J D E Creighton¹⁵, T D Creighton⁶⁴, J Cripe², S G Crowder⁶⁵,
 T J Cullen², A Cumming²⁶, L Cunningham²⁶, T Dal Canton⁴⁴,
 G Dályá⁶⁶, S L Danilishin^{6,7}, K Danzmann^{7,6}, A Dasgupta⁶⁷,
 C F Da Silva Costa²⁹, L E H Datrier²⁶, I Dave³⁵, D Davis²⁴,
 E J Daw⁶⁸, D DeBra³⁰, M Deenadayalan³, L M DeMarchi³⁴,
 N Demos¹⁰, T Dent^{6,7,69}, J Derby¹⁷, R DeSalvo⁷⁰,
 O de Varona^{6,7}, S Dhurandhar³, M C Díaz⁶⁴, B Ding⁶¹,
 A Dmitriev⁹, Z Doctor⁵³, F Donovan¹⁰, K L Dooley^{39,48},
 S Doravari^{6,7}, I Dorrington³⁹, T P Downes¹⁵, J C Driggers²⁷,
 Z Du⁴⁶, P Dupej²⁶, S E Dwyer²⁷, P J Easter⁴, T B Edo⁶⁸,
 M C Edwards⁵⁷, A Effler⁵, P Ehrens¹, J Eichholz¹,
 S S Eikenberry²⁹, R A Eisenstein¹⁰, R C Essick⁵³, H Estelles⁶⁰,
 Z B Etienne²³, T Etzel¹, M Evans¹⁰, T M Evans⁵, H Fair²⁴,
 S Fairhurst³⁹, X Fan⁴⁶, B Farr⁴¹, W M Farr⁹,
 E J Fauchon-Jones³⁹, M Favata²⁰, M Fays⁶⁸, M Fazio⁷¹, C Fee⁷²,
 J Feicht¹, M M Fejer³⁰, A Fernandez-Galiana¹⁰, E C Ferreira¹¹,
 T A Ferreira¹¹, M Fishbach⁵³, R P Fisher^{24,73}, J M Fishner¹⁰,
 M Fitz-Axen²⁵, M Fletcher²⁶, E Flynn¹⁷, H Fong⁵²,
 P W F Forsyth¹⁴, Z Frei⁶⁶, A Freise⁹, R Frey⁴¹, P Fritschel¹⁰,
 V V Frolov⁵, P Fulda²⁹, M Fyffe⁵, H A Gabbard²⁶, B U Gadre³,
 S M Gaebel⁹, J R Gair⁷⁴, M R Ganija³², S G Gaonkar³,
 A Garcia¹⁷, C García-Quirós⁶⁰, B Gateley²⁷, S Gaudio¹⁹,
 G Gaur⁷⁵, V Gayathri⁷⁶, D George¹³, J George³⁵, L Gergely⁷⁷,
 S Ghonge⁴³, Abhirup Ghosh¹², S Ghosh¹⁵, J A Giaime^{2,5},
 K D Giardino⁵, K Gill¹⁹, L Glover⁷⁰, P Godwin⁴⁹, E Goetz²⁷,
 R Goetz²⁹, B Goncharov⁴, G González², A Gopakumar⁷⁸,
 M L Gorodetsky³⁶, S E Gossan¹, C Graef²⁶, A Grant²⁶,
 S Gras¹⁰, P Grassia¹, C Gray²⁷, R Gray²⁶, A C Green^{9,29},
 R Green³⁹, E M Gretarsson¹⁹, H Grote³⁹, S Grunewald²¹,
 H K Gulati⁶⁷, A Gupta⁴⁹, M K Gupta⁶⁷, E K Gustafson¹,
 R Gustafson⁷⁹, L Haegel⁶⁰, B R Hall⁴⁰, E D Hall¹⁰,
 E Z Hamilton³⁹, G Hammond²⁶, M Haney³⁸, M M Hanke^{6,7},
 J Hanks²⁷, C Hanna⁴⁹, M D Hannam³⁹, O A Hannuksela⁵⁴,
 J Hanson⁵, T Hardwick², K Haris¹², G M Harry⁸⁰, I W Harry²¹,
 C-J Haster⁵², K Haughian²⁶, F J Hayes²⁶, J Healy³³,
 M C Heintze⁵, M Hendry²⁶, I S Heng²⁶, J Hennig^{6,7},
 A W Heptonstall¹, Francisco Hernandez Vivanco⁴, M Heurs^{6,7},
 S Hild²⁶, S Hochheim^{6,7}, A M Holgado¹³, N A Holland¹⁴,
 K Holt⁵, D E Holz⁵³, P Hopkins³⁹, C Horst¹⁵, J Hough²⁶,

E J Howell³⁷, C G Hoy³⁹, E A Huerta¹³, B Hughey¹⁹,
 M Hulko¹, S Husa⁶⁰, S H Huttner²⁶, T Huynh-Dinh⁵,
 C Ingram³², R Inta⁴⁷, B Irwin⁷², H N Isa²⁶, M Isi¹, B R Iyer¹²,
 K Izumi²⁷, S J Jadhav⁸¹, K Jani⁴³, N N Janthapur⁸¹,
 A C Jenkins⁸², J Jiang²⁹, D S Johnson¹³, A W Jones⁹,
 D I Jones⁸³, R Jones²⁶, L Ju³⁷, J Junker^{6,7}, C V Kalaghatgi³⁹,
 V Kalogera³⁴, B Kamai¹, S Kandhasamy⁴⁸, G Kang²²,
 J B Kanner¹, S J Kapadia¹⁵, S Karki⁴¹, K S Karvinen^{6,7},
 R Kashyap¹², M Kasprzak¹, E Katsavounidis¹⁰, W Katzman⁵,
 S Kaufer⁷, K Kawabe²⁷, N V Keerthana³, D Keitel²⁶,
 R Kennedy⁶⁸, J S Key⁸⁴, F Y Khalili³⁶, H Khan¹⁷, S Khan^{6,7},
 Z Khan⁶⁷, E A Khazanov⁸⁵, M Khursheed³⁵, N Kijbunchoo¹⁴,
 Chunglee Kim⁸⁶, J C Kim⁸⁷, K Kim⁵⁴, W Kim³², W S Kim⁸⁸,
 Y-M Kim⁸⁹, C Kimball³⁴, E J King³², P J King²⁷,
 M Kinley-Hanlon⁸⁰, R Kirchoff^{6,7}, J S Kissel²⁷, L Kleybolte⁹⁰,
 J H Klika¹⁵, S Klimenko²⁹, T D Knowles²³, P Koch^{6,7},
 S M Koehlenbeck^{6,7}, V Kondrashov¹, A Kontos¹⁰, N Koper^{6,7},
 M Korobko⁹⁰, W Z Korth¹, D B Kozak¹, V Kringel^{6,7},
 N Krishnendu¹⁸, G Kuehn^{6,7}, A Kumar⁸¹, P Kumar⁹¹,
 R Kumar⁶⁷, S Kumar¹², L Kuo⁵⁰, S Kwang¹⁵, B D Lackey²¹,
 K H Lai⁵⁴, T L Lam⁵⁴, M Landry²⁷, B B Lane¹⁰, R N Lang⁹²,
 J Lange³³, B Lantz³⁰, R K Lanza¹⁰, P D Lasky⁴, M Laxen⁵,
 A Lazzarini¹, S Leavey^{6,7}, Y K Lecoeuche²⁷, C H Lee⁵⁶,
 H K Lee⁹³, H M Lee⁹⁴, H W Lee⁸⁷, J Lee⁵⁵, K Lee²⁶,
 J Lehmann^{6,7}, A Lenon²³, Y Levin^{4,59}, J Li⁴⁶, K J L Li⁵⁴,
 T G F Li⁵⁴, X Li²⁸, F Lin⁴, S D Linker⁷⁰, T B Littenberg⁹⁵,
 J Liu³⁷, X Liu¹⁵, R K L Lo^{54,1}, N A Lockerbie¹⁶, L T London³⁹,
 M Lormand⁵, J D Lough^{6,7}, C O Lousto³³, G Lovelace¹⁷,
 M E Lower⁹⁶, H Lück^{7,6}, A P Lundgren⁹⁷, R Lynch¹⁰, Y Ma²⁸,
 R Macas³⁹, S Macfoy¹⁶, M MacInnis¹⁰, D M Macleod³⁹,
 F Magaña-Sandoval²⁴, L Magaña Zertuche⁴⁸, R M Magee⁴⁹,
 A Malik³⁵, V Mandic²⁵, V Mangano²⁶, G L Mansell^{27,10},
 M Manske^{15,14}, S Márka⁵⁹, Z Márka⁵⁹, C Markakis^{8,13},
 A S Markosyan³⁰, A Markowitz¹, E Maros¹, S Marsat²¹,
 I W Martin²⁶, R M Martin²⁰, D V Martynov⁹, K Mason¹⁰,
 E Massera⁶⁸, T J Massinger¹, M Masso-Reid²⁶, A Matas^{25,21},
 F Matichard^{1,10}, L Matone⁵⁹, N Mavalvala¹⁰, N Mazumder⁴⁰,
 J J McCann³⁷, R McCarthy²⁷, D E McClelland¹⁴,
 S McCormick⁵, L McCuller¹⁰, S C McGuire⁹⁸, J McIver¹,
 D J McManus¹⁴, T McRae¹⁴, S T McWilliams²³, D Meacher⁴⁹,
 G D Meadors⁴, M Mehmet^{6,7}, A K Mehta¹², A Melatos⁵⁸,
 G Mendell²⁷, R A Mercer¹⁵, E L Merilh²⁷, S Meshkov¹,

C Messenger²⁶, C Messick⁴⁹, P M Meyers⁵⁸, H Miao⁹,
 H Middleton⁵⁸, E E Mikhailov⁹⁹, A L Miller²⁹, M Millhouse³¹,
 J C Mills³⁹, M C Milovich-Goff⁷⁰, A Mishkin²⁹, C Mishra¹⁰⁰,
 T Mistry⁶⁸, S Mitra³, V P Mitrofanov³⁶, G Mitselmakher²⁹,
 R Mittleman¹⁰, G Mo⁵⁷, D Moffa⁷², K Mogushi⁴⁸,
 S R P Mohapatra¹⁰, C J Moore⁸, D Moraru²⁷, G Moreno²⁷,
 S Morisaki⁴⁵, C M Mow-Lowry⁹, Arunava Mukherjee^{6,7},
 D Mukherjee¹⁵, S Mukherjee⁶⁴, N Mukund³, A Mullavey⁵,
 J Munch³², E A Muñiz²⁴, M Muratore¹⁹, P G Murray²⁶,
 R K Nayak¹⁰¹, J Neilson⁷⁰, T J N Nelson⁵, M Nery^{6,7},
 A Neunzert⁷⁹, K Y Ng¹⁰, S Ng³², P Nguyen⁴¹, C North³⁹,
 L K Nuttall⁹⁷, J Oberling²⁷, B D O'Brien²⁹, G D O'Dea⁷⁰,
 G H Ogin¹⁰², J J Oh⁸⁸, S H Oh⁸⁸, F Ohme^{6,7}, H Ohta⁴⁵,
 M A Okada¹¹, M Oliver⁶⁰, P Oppermann^{6,7}, Richard J Oram⁵,
 B O'Reilly⁵, R G Ormiston²⁵, L F Ortega²⁹,
 R O'Shaughnessy³³, S Ossokine²¹, D J Ottaway³², H Overmier⁵,
 B J Owen⁴⁷, A E Pace⁴⁹, M A Page³⁷, A Pai⁷⁶, S A Pai³⁵,
 J R Palamos⁴¹, O Palashov⁸⁵, A Pal-Singh⁹⁰, Huang-Wei Pan⁵⁰,
 B Pang²⁸, P T H Pang⁵⁴, C Pankow³⁴, B C Pant³⁵, A Parida³,
 W Parker^{5,98}, D Pascucci²⁶, B L Pearlstone²⁶, C Pedersen³⁹,
 M Pedraza¹, A Pele⁵, S Penn¹⁰³, C J Perez²⁷, H P Pfeiffer^{21,52},
 M Phelps^{6,7}, K S Phukon³, M Pirello²⁷, M Pitkin²⁶,
 D Y T Pong⁵⁴, S Ponrathnam³, J Powell⁹⁶, A K Prajapati⁶⁷,
 J Prasad³, K Prasai³⁰, R Prasanna⁸¹, G Pratten⁶⁰,
 T Prestegard¹⁵, S Privitera²¹, L G Prokhorov³⁶, O Puncken^{6,7},
 M Pürerer²¹, H Qi¹⁵, V Quetschke⁶⁴, P J Quinonez¹⁹,
 E A Quintero¹, R Quitzow-James⁴¹, F J Raab²⁷, H Radkins²⁷,
 P Raffai⁶⁶, S Raja³⁵, C Rajan³⁵, B Rajbhandari⁴⁷,
 M Rakhmanov⁶⁴, K E Ramirez⁶⁴, A Ramos-Buades⁶⁰,
 Javed Rana³, K Rao³⁴, V Raymond³⁹, J Read¹⁷, S Reid¹⁶,
 D H Reitze^{1,29}, W Ren¹³, C J Richardson¹⁹, J W Richardson¹,
 P M Ricker¹³, K Riles⁷⁹, M Rizzo³⁴, N A Robertson^{1,26},
 R Robie²⁶, J G Rollins¹, V J Roma⁴¹, C L Romel²⁷,
 J H Romie⁵, K Rose⁷², S G Rosofsky¹³, M P Ross¹⁰⁴,
 S Rowan²⁶, A Rüdiger^{*6,7}, G Rutins¹⁰⁵, K Ryan²⁷, S Sachdev¹,
 T Sadecki²⁷, M Sakellariadou⁸², M Saleem¹⁸, L Sammut⁴,
 E J Sanchez¹, L E Sanchez¹, V Sandberg²⁷, J R Sanders²⁴,
 K A 69²⁰, N Sarin⁴, B S Sathyaprakash^{49,39}, P R Saulson²⁴,
 O Sauter⁷⁹, R L Savage²⁷, P Schale⁴¹, M Scheel²⁸, J Scheuer³⁴,
 R Schnabel⁹⁰, R M S Schofield⁴¹, A Schönbeck⁹⁰, E Schreiber^{6,7},
 B W Schulte^{6,7}, B F Schutz³⁹, S G Schwalbe¹⁹, J Scott²⁶,
 S M Scott¹⁴, E Seidel¹³, D Sellers⁵, A S Sengupta¹⁰⁶,

N Sennett²¹, A Sergeev⁸⁵, Y Setyawati^{6,7}, D A Shaddock¹⁴,
 T Shaffer²⁷, M S Shahriar³⁴, M B Shaner⁷⁰, L Shao²¹,
 P Sharma³⁵, P Shawhan⁴², H Shen¹³, R Shink¹⁰⁷,
 D H Shoemaker¹⁰, D M Shoemaker⁴³, S ShyamSundar³⁵,
 K Siellez⁴³, D Sigg²⁷, A D Silva¹¹, L P Singer⁴⁴, A M Sintes⁶⁰,
 S Sitmukhambetov⁶⁴, V Skliris³⁹, B J J Slagmolen¹⁴,
 T J Slaven-Blair³⁷, J R Smith¹⁷, R J E Smith⁴, S Somala¹⁰⁸,
 E J Son⁸⁸, B Sorazu²⁶, T Souradeep³, E Sowell⁴⁷,
 A P Spencer²⁶, A K Srivastava⁶⁷, V Srivastava²⁴, K Staats³⁴,
 M Standke^{6,7}, M Steinke^{6,7}, J Steinlechner^{90,26}, S Steinlechner⁹⁰,
 D Steinmeyer^{6,7}, S P Stevenson⁹⁶, D Stocks³⁰, R Stone⁶⁴,
 D J Stops⁹, K A Strain²⁶, S E Strigin³⁶, A Strunk²⁷,
 R Sturani¹⁰⁹, A L Stuver¹¹⁰, V Sudhir¹⁰, T Z Summerscales¹¹¹,
 L Sun¹, S Sunil⁶⁷, J Suresh³, P J Sutton³⁹, M J Szczepańczyk¹⁹,
 S C Tait²⁶, C Talbot⁴, D Talukder⁴¹, D B Tanner²⁹, M Tápai⁷⁷,
 A Taracchini²¹, J D Tasson⁵⁷, R Taylor¹, F Thies^{6,7},
 M Thomas⁵, P Thomas²⁷, S R Thondapu³⁵, K A Thorne⁵,
 E Thrane⁴, Srishti Tiwari⁷⁸, V Tiwari³⁹, K Toland²⁶,
 Z Tornasi²⁶, C I Torrie¹, D Töyrä⁹, G Traylor⁵, R Trudeau¹,
 M Tse¹⁰, R Tso²⁸, L Tsukada⁴⁵, D Tsuna⁴⁵, D Tuyenbayev⁶⁴,
 K Ueno⁴⁵, D Ugolini¹¹², C S Unnikrishnan⁷⁸, A L Urban²,
 S A Usman³⁹, H Vahlbruch⁷, G Vajente¹, G Valdes²,
 D C Vander-Hyde²⁴, J V van Heijningen³⁷, A A van Veggel²⁶,
 V Varma²⁸, S Vass¹, A Vecchio⁹, J Veitch²⁶, P J Veitch³²,
 K Venkateswara¹⁰⁴, G Venugopalan¹, A D Viets¹⁵, D J Vine¹⁰⁵,
 S Vitale¹⁰, T Vo²⁴, C Vorvick²⁷, S P Vyatchanin³⁶, A R Wade¹,
 L E Wade⁷², M Wade⁷², M Walker¹⁷, L Wallace¹, S Walsh¹⁵,
 H Wang⁹, J Z Wang⁷⁹, W H Wang⁶⁴, Y F Wang⁵⁴, R L Ward¹⁴,
 Z A Warden¹⁹, J Warner²⁷, J Watchi⁶¹, B Weaver²⁷,
 L-W Wei^{6,7}, M Weinert^{6,7}, A J Weinstein¹, R Weiss¹⁰,
 F Wellmann^{6,7}, L Wen³⁷, E K Wessel¹³, P Weßels^{6,7},
 J W Westhouse¹⁹, K Wette¹⁴, J T Whelan³³, B F Whiting²⁹,
 C Whittle¹⁰, D M Wilken^{6,7}, D Williams²⁶, J L Willis¹,
 B Willke^{6,7}, M H Wimmer^{6,7}, W Winkler^{6,7}, C C Wipf¹,
 H Wittel^{6,7}, G Woan²⁶, J Woehler^{6,7}, J K Wofford³³,
 J Worden²⁷, J L Wright²⁶, D S Wu^{6,7}, D M Wysocki³³, L Xiao¹,
 H Yamamoto¹, C C Yancey⁴², L Yang⁷¹, M J Yap¹⁴,
 M Yazback²⁹, D W Yeeles³⁹, Hang Yu¹⁰, Haocun Yu¹⁰,
 S H R Yuen⁵⁴, A K Zadrożny⁶⁴, M Zanolin¹⁹, M Zevin³⁴,
 J Zhang³⁷, L Zhang¹, T Zhang²⁶, C Zhao³⁷, M Zhou³⁴, Z Zhou³⁴,
 X J Zhu⁴, M E Zucker^{1,10}, and J Zweizig¹

(The LIGO Scientific Collaboration)

*Deceased, July 2018.

¹LIGO, California Institute of Technology, Pasadena, CA 91125, USA

²Louisiana State University, Baton Rouge, LA 70803, USA

³Inter-University Centre for Astronomy and Astrophysics, Pune 411007, India

⁴OzGrav, School of Physics & Astronomy, Monash University, Clayton 3800, Victoria, Australia

⁵LIGO Livingston Observatory, Livingston, LA 70754, USA

⁶Max Planck Institute for Gravitational Physics (Albert Einstein Institute), D-30167 Hannover, Germany

⁷Leibniz Universität Hannover, D-30167 Hannover, Germany

⁸University of Cambridge, Cambridge CB2 1TN, United Kingdom

⁹University of Birmingham, Birmingham B15 2TT, United Kingdom

¹⁰LIGO, Massachusetts Institute of Technology, Cambridge, MA 02139, USA

¹¹Instituto Nacional de Pesquisas Espaciais, 12227-010 São José dos Campos, São Paulo, Brazil

¹²International Centre for Theoretical Sciences, Tata Institute of Fundamental Research, Bengaluru 560089, India

¹³NCSA, University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA

¹⁴OzGrav, Australian National University, Canberra, Australian Capital Territory 0200, Australia

¹⁵University of Wisconsin-Milwaukee, Milwaukee, WI 53201, USA

¹⁶SUPA, University of Strathclyde, Glasgow G1 1XQ, United Kingdom

¹⁷California State University Fullerton, Fullerton, CA 92831, USA

¹⁸Chennai Mathematical Institute, Chennai 603103, India

¹⁹Embry-Riddle Aeronautical University, Prescott, AZ 86301, USA

²⁰Montclair State University, Montclair, NJ 07043, USA

²¹Max Planck Institute for Gravitational Physics (Albert Einstein Institute), D-14476 Potsdam-Golm, Germany

²²Korea Institute of Science and Technology Information, Daejeon 34141, South Korea

²³West Virginia University, Morgantown, WV 26506, USA

²⁴Syracuse University, Syracuse, NY 13244, USA

²⁵University of Minnesota, Minneapolis, MN 55455, USA

²⁶SUPA, University of Glasgow, Glasgow G12 8QQ, United Kingdom

²⁷LIGO Hanford Observatory, Richland, WA 99352, USA

²⁸Caltech CaRT, Pasadena, CA 91125, USA

²⁹University of Florida, Gainesville, FL 32611, USA

³⁰Stanford University, Stanford, CA 94305, USA

³¹Montana State University, Bozeman, MT 59717, USA

³²OzGrav, University of Adelaide, Adelaide, South Australia 5005, Australia

³³Rochester Institute of Technology, Rochester, NY 14623, USA

³⁴Center for Interdisciplinary Exploration & Research in Astrophysics (CIERA), Northwestern University, Evanston, IL 60208, USA

³⁵RRCAT, Indore, Madhya Pradesh 452013, India

³⁶Faculty of Physics, Lomonosov Moscow State University, Moscow 119991, Russia

³⁷OzGrav, University of Western Australia, Crawley, Western Australia 6009, Australia

³⁸Physik-Institut, University of Zurich, Winterthurerstrasse 190, 8057 Zurich, Switzerland

³⁹Cardiff University, Cardiff CF24 3AA, United Kingdom

⁴⁰Washington State University, Pullman, WA 99164, USA

- ⁴¹University of Oregon, Eugene, OR 97403, USA
⁴²University of Maryland, College Park, MD 20742, USA
⁴³School of Physics, Georgia Institute of Technology, Atlanta, GA 30332, USA
⁴⁴NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA
⁴⁵RESCEU, University of Tokyo, Tokyo, 113-0033, Japan.
⁴⁶Tsinghua University, Beijing 100084, China
⁴⁷Texas Tech University, Lubbock, TX 79409, USA
⁴⁸The University of Mississippi, University, MS 38677, USA
⁴⁹The Pennsylvania State University, University Park, PA 16802, USA
⁵⁰National Tsing Hua University, Hsinchu City, 30013 Taiwan, Republic of China
⁵¹Charles Sturt University, Wagga Wagga, New South Wales 2678, Australia
⁵²Canadian Institute for Theoretical Astrophysics, University of Toronto, Toronto, Ontario M5S 3H8, Canada
⁵³University of Chicago, Chicago, IL 60637, USA
⁵⁴The Chinese University of Hong Kong, Shatin, NT, Hong Kong
⁵⁵Seoul National University, Seoul 08826, South Korea
⁵⁶Pusan National University, Busan 46241, South Korea
⁵⁷Carleton College, Northfield, MN 55057, USA
⁵⁸OzGrav, University of Melbourne, Parkville, Victoria 3010, Australia
⁵⁹Columbia University, New York, NY 10027, USA
⁶⁰Universitat de les Illes Balears, IAC3—IEEC, E-07122 Palma de Mallorca, Spain
⁶¹Université Libre de Bruxelles, Brussels 1050, Belgium
⁶²Sonoma State University, Rohnert Park, CA 94928, USA
⁶³University of Rhode Island, Kingston, RI 02881, USA
⁶⁴The University of Texas Rio Grande Valley, Brownsville, TX 78520, USA
⁶⁵Bellevue College, Bellevue, WA 98007, USA
⁶⁶MTA-ELTE Astrophysics Research Group, Institute of Physics, Eötvös University, Budapest 1117, Hungary
⁶⁷Institute for Plasma Research, Bhat, Gandhinagar 382428, India
⁶⁸The University of Sheffield, Sheffield S10 2TN, United Kingdom
⁶⁹IGFAE, Campus Sur, Universidade de Santiago de Compostela, 15782 Spain
⁷⁰California State University, Los Angeles, 5151 State University Dr, Los Angeles, CA 90032, USA
⁷¹Colorado State University, Fort Collins, CO 80523, USA
⁷²Kenyon College, Gambier, OH 43022, USA
⁷³Christopher Newport University, Newport News, VA 23606, USA
⁷⁴School of Mathematics, University of Edinburgh, Edinburgh EH9 3FD, United Kingdom
⁷⁵Institute Of Advanced Research, Gandhinagar 382426, India
⁷⁶Indian Institute of Technology Bombay, Powai, Mumbai 400 076, India
⁷⁷University of Szeged, Dóm tér 9, Szeged 6720, Hungary
⁷⁸Tata Institute of Fundamental Research, Mumbai 400005, India
⁷⁹University of Michigan, Ann Arbor, MI 48109, USA
⁸⁰American University, Washington, D.C. 20016, USA
⁸¹Directorate of Construction, Services & Estate Management, Mumbai 400094 India
⁸²King’s College London, University of London, London WC2R 2LS, United Kingdom
⁸³University of Southampton, Southampton SO17 1BJ, United Kingdom
⁸⁴University of Washington Bothell, Bothell, WA 98011, USA
⁸⁵Institute of Applied Physics, Nizhny Novgorod, 603950, Russia
⁸⁶Ewha Womans University, Seoul 03760, South Korea
⁸⁷Inje University Gimhae, South Gyeongsang 50834, South Korea

- ⁸⁸National Institute for Mathematical Sciences, Daejeon 34047, South Korea
- ⁸⁹Ulsan National Institute of Science and Technology, Ulsan 44919, South Korea
- ⁹⁰Universität Hamburg, D-22761 Hamburg, Germany
- ⁹¹Cornell University, Ithaca, NY 14850, USA
- ⁹²Hillsdale College, Hillsdale, MI 49242, USA
- ⁹³Hanyang University, Seoul 04763, South Korea
- ⁹⁴Korea Astronomy and Space Science Institute, Daejeon 34055, South Korea
- ⁹⁵NASA Marshall Space Flight Center, Huntsville, AL 35811, USA
- ⁹⁶OzGrav, Swinburne University of Technology, Hawthorn VIC 3122, Australia
- ⁹⁷University of Portsmouth, Portsmouth, PO1 3FX, United Kingdom
- ⁹⁸Southern University and A&M College, Baton Rouge, LA 70813, USA
- ⁹⁹College of William and Mary, Williamsburg, VA 23187, USA
- ¹⁰⁰Indian Institute of Technology Madras, Chennai 600036, India
- ¹⁰¹IISER-Kolkata, Mohanpur, West Bengal 741252, India
- ¹⁰²Whitman College, 345 Boyer Avenue, Walla Walla, WA 99362 USA
- ¹⁰³Hobart and William Smith Colleges, Geneva, NY 14456, USA
- ¹⁰⁴University of Washington, Seattle, WA 98195, USA
- ¹⁰⁵SUPA, University of the West of Scotland, Paisley PA1 2BE, United Kingdom
- ¹⁰⁶Indian Institute of Technology, Gandhinagar Ahmedabad Gujarat 382424, India
- ¹⁰⁷Université de Montréal/Polytechnique, Montreal, Quebec H3T 1J4, Canada
- ¹⁰⁸Indian Institute of Technology Hyderabad, Sangareddy, Khandi, Telangana 502285, India
- ¹⁰⁹International Institute of Physics, Universidade Federal do Rio Grande do Norte, Natal RN 59078-970, Brazil
- ¹¹⁰Villanova University, 800 Lancaster Ave, Villanova, PA 19085, USA
- ¹¹¹Andrews University, Berrien Springs, MI 49104, USA
- ¹¹²Trinity University, San Antonio, TX 78212, USA