

Curriculum Vitae — Dr. Margherita Giustini

Dr. Margherita Giustini

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I am a postdoctoral researcher with more than 15 years of experience in the field of high-energy astrophysics, focusing on the electromagnetic activity of supermassive black holes and their relation to the galaxies that host them. I am an expert of winds and outflows from active galactic nuclei and of the observational and theoretical study of X-ray quasi-periodic eruptions. I am a member of the ESA XMM-Newton Users Group and of the NewAthena X-IFU Science Advisory Team.

WORK EXPERIENCE **Personal laboral de investigación, CAB (INTA-CSIC), Madrid — 2024-present**

Postdoctoral researcher for the *Instituto Nacional de Técnica Aeroespacial* (INTA, the Spanish National Institute of Aerospace Technology) at the *Centro de Astrobiología* (CAB, Centre for Astrobiology), a mixed centre of the *Consejo Superior de Investigaciones Científicas* (CSIC, the Spanish National Research Council) and INTA.

Atracción de Talento Fellow, CAB (CSIC-INTA), Madrid — 2019-2024

Principal Investigator of the project “Unveiling Black Hole Winds from Space”, co-financed by INTA and the Comunidad de Madrid, and developed at CAB.

Postdoctoral researcher, CAB (CSIC-INTA), Madrid — 2018-2019

Postdoctoral researcher with Dr. Giovanni Miniutti at CAB. Here I participated to the discovery of X-ray quasi-periodic eruptions, an extreme cosmic phenomenon associated with massive black holes.

Postdoctoral researcher, SRON, Utrecht (NL) — 2014-2018

Postdoctoral researcher in Dr. Elisa Costantini’s research group at the Space Research Organisation of the Netherlands (SRON).

ESA Research Fellow in Space Science, ESAC, Madrid — 2012-2014

Research Fellow of the European Space Agency (ESA) at the European Space Astronomy Centre (ESAC) in the XMM-Newton group.

Visiting postdoctoral researcher, UMBC, MA (USA) — 2012

Visiting postdoc in the research group of Dr. Jane T. Turner at the University of Maryland Baltimore County (UMBC), USA.

Postdoctoral researcher, INAF, Bologna (IT) — 2011

“Assegnista di ricerca” (*becario de investigación, research fellow*) at the Italian National Institute for Astrophysics (INAF) in Bologna for six months, after defending my PhD dissertation.

EDUCATION

University of Bologna, Italy — PhD in Astronomy, 2011

Dissertation: *"Accretion disk winds in active galactic nuclei: an X-ray view"*

Defended on 15/04/2011, Excellence marks.

University of Bologna, Italy — M.Sc. in Astrophysics and Cosmology, 2007

Master Thesis: *"X-ray spectroscopy of two PG QSOs: the complex and variable nature of the ionized absorber"*.

Defended on 12/10/2007, Mark: 110/110 cum laude.

University of Bologna, Italy — B.Sc. in Astronomy, 2005

Bachelor Thesis: *"Equipartition parameters in synchrotron radio sources"*

Defended on 14/12/2005, mark: 101/110.

WORK VISITS

Japanese Aerospace Exploration Agency (JAXA) — Tokyo (Japan), 2016

One month working in the calibration team of the soft X-ray spectrometer on board the JAXA/ESA/NASA/CSA satellite HITOMI.

Space Telescope Science Institute (STScI) — Baltimore (USA), 2016

One week working with Dr. G. A. Kriss analysing high-resolution UV data taken with the Cosmic Origin Spectrometer on board the Hubble Space Telescope.

University of Nevada, Las Vegas (UNLV) — Las Vegas (USA), 2010

Two months as visiting research scholar working with Prof. D. Proga in the Department of Physics and Astronomy of the UNLV, as part of my PhD.

Pennsylvania State University (PSU) — State College (USA), 2009

One year as visiting graduate student working with Prof. G. Chartas and Prof. M. Eracleous in the Department of Astronomy and Astrophysics of the PSU, as part of my PhD.

GRANTS

Atracción de Talento Senior Grant, 2019-2024 — 213.000 euro

Five years of postdoctoral salary plus support for travels and equipment.

Leids Kerkhoven-Bosscha Fonds (LKBF) grant, 2016 — 1500 euro

Travel grant to support my visit to the STScI.

Leids Kerkhoven-Bosscha Fonds (LKBF) grant, 2015 — 1000 euro

Travel grant to support my participation to the 2015 XMM-Newton scientific workshop.

NASA grant, 2016 — 40.000 dollars

Grant number G06-17097XG awarded for the Chandra CXC proposal number 17700609 (science PI: M. Giustini; budget PI: D. Proga).

NASA grant, 2010 — 60.000 dollars

Grant number NNX10AE11G awarded for the XMM-Newton proposal number 06061501 (science PI: M. Giustini; budget PI: G. Chartas).

American Astronomical Society travel grant, 2009 — 1800 dollars

Travel grant to support my participation to the XXVIIth General Assembly of the International Astronomical Union.

Marco Polo Scholarship, 2009 — 20.000 euro

Extra-salary from the University of Bologna to support my work visits abroad during the PhD (13 months total).

Doctoral Scholarship, 2008-2010 — 54.000 euro

Grant from the University of Bologna to support my PhD studies (3 years total).

**PROFESSIONAL
SERVICE**

ESA NewAthena Science Working Group 2 “Transients and multi-messenger astrophysics” active member — **2025-Present**

ESA NewAthena Science Working Group 5 “Galaxies and supermassive black holes” active member — **2025-Present**

Local Organising Committee (LOC) co-chair of the European Space Astronomy Centre-funded conference “*X-ray Quasi-periodic eruptions & Repeating Nuclear Transients*” — **2025**

ESA NewAthena X-IFU Science Advisory Team member — **2024-Present**

ESA XMM-Newton Users Group member — **2024-Present**

ESA Space Science seminars organising committee — **2022-2024**

ESAC Science Faculty Council representative of the CAB — **2022-2023**

Science Organising Committee (SOC) member of the special session “*Gravitational wave sources in gas-rich environments*”, held at the European Astronomical Society Annual Meeting — **2023**

SOC member of the special session “*Black-hole accretion discs 50 years on*”, held at the European Astronomical Society Annual Meeting — **2023**

Member of the **Observing Time Allocation Committee (OTAC)** for the ESA INTEGRAL telescope — **2020, 2021**

Member of the **OTAC** for the ESA XMM-Newton telescope — **2018, 2019, 2021**

Member of the **OTAC** for the NASA Chandra CXC telescope — **2019**

SOC member and LOC co-chair of the European Space Astronomy Centre-funded workshop “Spectral/timing properties of accreting objects: from X-ray binaries to AGN” — **2013**

Bi-weekly scientific seminars organiser for ESAC Young Graduate Trainees — **2013**

Undergraduate Laboratory in High Energy Astrophysics lecturer at the Italian National Institute for Astrophysics (INAF) in Bologna — **2010**

Referee for the Astrophysical Journal, Astronomy & Astrophysics, Monthly Notices of the Royal Astronomical Society, Nature Astronomy — **2010-Present**

**SUCCESSFUL
OBSERVING
PROPOSALS
AS PRINCIPAL
INVESTIGATOR**

ESA XMM-Newton (74 hours) + National Radio Astronomy Observatory (NRAO) Karl G. Jansky Very Large Array (20 hours), “The puzzling X-ray Quasi-periodic Eruptions in RX J1301.9+2747” — **2021**

ESA XMM-Newton (37 hours) + NRAO Karl G. Jansky Very Large Array (10 hours), “Revealing the pattern of X-ray Quasi-periodic Eruptions in RX J1301.9+2747” — **2019**

NASA Chandra X-ray Observatory (70 hours), “Exploring Positive Feedback in Action in NGC 2617” — **2015**

ESA XMM-Newton (16 hours) + NASA/ESA Hubble Space Telescope (8 orbits), “Unveiling the X-ray/UV Connection in AGN Winds: the PG 1126-041 Case Study” — **2013, 2014**

ESA XMM-Newton (36 hours), “At the Edge of an AGN Wind: a Deep Observation of PG 1126-041” — **2008**

ESA XMM-Newton (37 hours), “Variable Absorption in BAL QSOs: Catching the Origin of AGN Winds” — **2007**

**SELECTION OF
REFEREED
PUBLICATIONS**

“Rapid onset of a Comptonisation zone in the repeating tidal disruption event XMMSL2 J140446.9-251135”,

R. Saxton, T. Wevers, S. van Velzen, K. Alexander, Z. Liu, A. Mummery, **M. Giustini**, G. Miniutti, F. Fuerst, J. J. E. Kajava, A. M. Read, P. G. Jonker, A. Rau, A. and D.-Y. Li, **Astronomy & Astrophysics (A&A) in press, arXiv:2510.02905 (2025)**

“Prospects for EMRI/MBH Parameter Estimation Using Quasiperiodic Eruption Timings: Short-timescale Analysis”,

J. Chakraborty, L. V. Drummond, M. Bonetti, A. Franchini, S. Kejriwal, G. Miniutti, R.

Arcodia, S. A. Hughes, F. Duque, E. Kara, A. Sesana, **M. Giustini**, A. Motta, and K. Burdge, **The Astrophysical Journal (ApJ) 992, 120 (2025)**

“NICER observations reveal doubled timescales in Ansky’s quasi-periodic eruptions (QPEs)”,

L. Hernández-García, P. Sánchez-Sáez, J. Chakraborty, J. Cuadra, G. Miniutti, R. Arcodia, P. Arévalo, **M. Giustini**, E. Kara, C. Ricci, D. R. Pasham, Z. Arzoumanian, K. Gendreau, and P. Lira, **A&A in press, arXiv:2509.16304 (2025)**

“Rapidly Varying Ionization Features in a Quasi-periodic Eruption: A Homologous Expansion Model for the Spectroscopic Evolution”,

J. Chakraborty, P. Kosec, E. Kara, G. Miniutti, R. Arcodia, E. Behar, **M. Giustini**, L. Hernández-García, M. Masterson, E. Quintin, C. Ricci, and P. Sánchez-Sáez, **ApJ 984, 124 (2025)**

“The X-ray Integral Field Unit at the end of the Athena reformulation phase”, the X-IFU Consortium, including **M. Giustini**, **Experimental Astronomy 59, 18 (2025)**

“Discovery of Quasiperiodic Eruptions in the Tidal Disruption Event and Extreme Coronal Line Emitter AT2022upj: Implications for the QPE/TDE Fraction and a Connection to ECLEs”,

J. Chakraborty, E. Kara, R. Arcodia, J. Buchner, **M. Giustini**, L. Hernández-García, I. Linial, M. Masterson, G. Miniutti, A. Mummery, C. Panagiotou, E. Quintin, and P. Sánchez-Sáez, **ApJ 983, 39 (2025)**

“Millihertz oscillations near the innermost orbit of a supermassive black hole”,

M. Masterson, E. Kara, C. Panagiotou, W. Alston, J. Chakraborty, K. Burdge, C. Ricci, S. Laha, I. Arcavi, R. Arcodia, B. S. Cenko, A. C. Fabian, J. A. García, **M. Giustini**, A. Ingram, P. Kosec, M. Loewenstein, E. T. Meyer, G. Miniutti, C. Pinto, R. A. Remillard, D. R. Sadaula, O. I. Shuvo, B. Trakhtenbrot, and J. Wang, **Nature 638, 370 (2025)**

“The Lunar Gravitational-wave Antenna: mission studies and science case”, the Lunar Gravitational-wave Antenna Scientific Consortium, including **M. Giustini**, **Journal of Cosmology and Astroparticle Physics 01, 108 (2025)**

“Detection of a Highly Ionized Outflow in the Quasiperiodically Erupting Source GSN 069”,

P. Kosec, E. Kara, L. Brenneman, J. Chakraborty, **M. Giustini**, G. Miniutti, C. Pinto, D. Rogantini, R. Arcodia, M. Middleton, and A. Sacchi, **ApJ 978, 10 (2025)**

“Eppur si muove: Evidence of disc precession or a sub-milliparsec SMBH binary in the QPE-emitting galaxy GSN 069”,

G. Miniutti, A. Franchini, M. Bonetti, **M. Giustini**, J. Chakraborty, R. Arcodia, R. Saxton, E. Quintin, P. Kosec, I. Linial, and A. Sesana, **A&A 693, 179 (2025)**

“Fragments of harmony amid apparent chaos: A closer look at the X-ray quasi-periodic eruptions of the galaxy RX J1301.9+2747”,

M. Giustini, G. Miniutti, R. Arcodia, A. Goodwin, K. D. Alexander, J. Chakraborty, J.

Buchner, P. Kosec, R. Saxton, M. Bonetti, A. Franchini, T. Ryu, X. Shu, E. Kara, G. Ponti, E. Quintin, F. Vincentelli, N. Webb, J. Kajava, and S. D. von Fellenberg, **A&A 692, 15 (2024)**

“Ticking away: The long-term X-ray timing and spectral evolution of eRO-QPE2”,

R. Arcodia, I. Linial, G. Miniutti, A. Franchini, **M. Giustini**, M. Bonetti, A. Sesana, R. Soria, J. Chakraborty, M. Dotti, E. Kara, A. Merloni, G. Ponti, and F. Vincentelli, **A&A 690, 80 (2024)**

“Supermassive Black Hole Winds in X-rays: SUBWAYS. III. A population study on ultra-fast outflows”,

V. E. Gianolli and the SUBWAYS team, including **M. Giustini**, **A&A 687, 235 (2024)**

“Testing EMRI Models for Quasi-periodic Eruptions with 3.5 yr of Monitoring eRO-QPE1”,

J. Chakraborty, R. Arcodia, E. Kara, G. Miniutti, **M. Giustini**, A. J. Tetarenko, L. Rhodes, A. Franchini, M. Bonetti, K. B. Burdge, A. Goodwin, T. J. Maccarone, A. Merloni, G. Ponti, R. A. Remillard, and R. Saxton, **ApJ 965, 12 (2024)**

“Coordinated X-ray and UV absorption within the accretion disk wind of the active galactic nucleus PG 1126-041”,

M. Giustini, P. Rodríguez Hidalgo, J. N. Reeves, G. Matzeu, V. Braito, M. Eracleous, G. Chartas, N. Schartel, C. Vignali, P. B. Hall, T. Waters, G. Ponti, D. Proga, M. Dadina, M. Cappi, G. Miniutti, and L. de Vries, **A&A 679, 73 (2023)**

“Tormund's return: Hints of quasi-periodic eruption features from a recent optical tidal disruption event”,

E. Quintin, N. A. Webb, S. Guillot, G. Miniutti, E. S. Kammoun, **M. Giustini**, R. Arcodia, G. Soucail, N. Clerc, R. Amato, and C. B. Markwardt, **A&A 675, 152 (2023)**

“Quasi-periodic eruptions from impacts between the secondary and a rigidly precessing accretion disc in an extreme mass-ratio inspiral system”,

A. Franchini, M. Bonetti, A. Lupi, G. Miniutti, E. Bortolas, **M. Giustini**, M. Dotti, A. Sesana, R. Arcodia, and T. Ryu, **A&A 675, 100 (2023)**

“Alive and kicking: A new QPE phase in GSN 069 revealing a quiescent luminosity threshold for QPEs”,

G. Miniutti, **M. Giustini**, R. Arcodia, R. Saxton, J. Chakraborty, A. M. Read, and E. Kara, **A&A 674, 1 (2023)**

“Supermassive Black Hole Winds in X-rays: SUBWAYS. II. HST UV spectroscopy of winds at intermediate redshifts”,

M. Mehdipour and the SUBWAYS team, including **M. Giustini**, **A&A 670, 183 (2023)**

“Supermassive Black Hole Winds in X-rays: SUBWAYS. I. Ultra-fast outflows in quasars beyond the local Universe”,

G. Matzeu and the SUBWAYS team, including **M. Giustini**, **A&A 670, 182 (2023)**

“Repeating tidal disruptions in GSN 069: Long-term evolution and constraints on quasi-periodic eruptions' models”,

G. Miniutti, **M. Giustini**, R. Arcodia, R. Saxton, A. M. Read, S. Bianchi, and K. Alexander, **A&A 670, 93 (2023)**

"A new emulated Monte Carlo radiative transfer disc-wind model: X-Ray Accretion Disc-wind Emulator - XRADE",

G. Matzeu, M. Lieu, M. T. Costa, J. N. Reeves, V. Braito, M. Dadina, E. Nardini, P. G. Boorman, M. L. Parker, S. A. Sim, D. Barret, E. Kammoun, R. Middei, **M. Giustini**, M. Brusa, J. Pérez Cabrera, and S. Marchesi, **Monthly Notices of the Royal Astronomical Society (MNRAS) 515, 6172 (2022)**

"Compact and Variable Radio Emission from an Active Galaxy with Supersoft X-Ray Emission",

L. Yang, X. Shu, F. Zhang, Y. Chandola, D. Liu, Y. Liu, M. Gu, **M. Giustini**, N. Jiang, Y.-P. Li, D. Li, D. Elbaz, S. Juneau, M. Pannella, L. Sun, N. Tang, T. Wang, and H. Zhou, **ApJ 935, 115 (2022)**

"The complex time and energy evolution of quasi-periodic eruptions in eRO-QPE1",

R. Arcodia, G. Miniutti, G. Ponti, J. Buchner, **M. Giustini**, A. Merloni, K. Nandra, F. Vincentelli, E. Kara, M. Salvato, and D. Pasham, **A&A 662, 49 (2022)**

"Possible X-Ray Quasi-periodic Eruptions in a Tidal Disruption Event Candidate",

J. Chakraborty, E. Kara, M. Masterson, **M. Giustini**, G. Miniutti, and R. Saxton, **ApJ 921, 40 (2021)**

"Multiphase Powerful Outflows Detected in High-z Quasars",

G. Chartas, M. Cappi, C. Vignali, M. Dadina, V. James, G. Lanzuisi, **M. Giustini**, M. Gaspari, S. Strickland, and E. Bertola, **ApJ 920, 24 (2021)**

"On Synthetic Absorption Line Profiles of Thermally Driven Winds from Active Galactic Nuclei",

S. Ganguly, D. Proga, T. Waters, R. Dannen, S. Dyda, **M. Giustini**, T. Kallman, J. Raymond, J. Miller, and P. Rodriguez Hidalgo, **ApJ 914, 114 (2021)**

"Observations of a radio-bright, X-ray obscured GRS 1915+105",

S. E. Motta, J. J. E. Kajava, **M. Giustini**, D. R. A. Williams, M. Del Santo, R. Fender, D. A. Green, I. Heywood, L. Rhodes, A. Segreto, G. Sivakoff, and P. A. Woudt, **MNRAS 503, 152 (2021)**

"X-ray Quasi-Periodic Eruptions from the galactic nucleus of RX J1301.9+2747",

M. Giustini, G. Miniutti, and R. Saxton, **A&A 636, 2 (2020)**

"The quest for dual and binary supermassive black holes: A multi-messenger view",

A. De Rosa, C. Vignali, T. Bogdanović, P. Capelo, M. Charisi, M. Dotti, B. Husemann, Bernd E. Lusso, L. Mayer, Z. Paragi, J. Runnoe, A. Sesana, L. Steinborn, S. Bianchi, M. Colpi, L. del Valle, S. Frey, K. Gabányi, **M. Giustini**, M. Guainazzi, Z. Haiman, N. Herrera Ruiz, R. Herrero-Illana, K. Iwasawa, S. Komossa, D. Lena, N. Loiseau, M. Perez-Torres, E. Piconcelli, and M. Volonteri, **New Astronomy Reviews, Volume 86, 101525 (2019)**

“A global view of the inner accretion and ejection flow around super massive black holes. Radiation-driven accretion disk winds in a physical context”,
M. Giustini and D. Proga, **A&A 630, 94 (2019)**

“Nine-hour X-ray quasi-periodic eruptions from a low-mass black hole galactic nucleus”,

G. Miniutti, R. Saxton, **M. Giustini**, K. Alexander, R. P. Fender, I. Heywood, I. Monageng, M. Coriat, A. K. Tzioumis, A. M. Read, C. Knigge, P. Gandhi, M. L. Pretorius, and B. Agís-González, **Nature 573, 381 (2019)**

“The variability of the warm absorber in I Zwicky 1 as seen by XMM-Newton”, C. V. Silva, E. Costantini, M. Giustini, G. A. Kriss, W. N. Brandt, L. Gallo, and D. R. Wilkins, **MNRAS 480, 2334 (2018)**

“Hitomi (ASTRO-H) X-ray Astronomy Satellite”,

HITOMI collaboration, including **M. Giustini**, **Journal of Astronomical Telescopes, Instruments, and Systems, 4, 021402 (2018)**

“Hitomi observation of radio galaxy NGC 1275: The first X-ray microcalorimeter spectroscopy of Fe-K α line emission from an active galactic nucleus”,

HITOMI collaboration, including **M. Giustini**, **Publications of the Astronomical Society of Japan (PASJ), 70, 13 (2018)**

“Hitomi Constraints on the 3.5 keV Line in the Perseus Galaxy Cluster”,

HITOMI collaboration, including **M. Giustini**, **ApJ 837, 15 (2017)**

“Direct probe of the inner accretion flow around the supermassive black hole in NGC 2617”,

M. Giustini, T. J. Turner, J. N. Reeves, L. Miller, E. Legg, S. B. Kraemer, and I. M. George, **A&A 577, 8 (2015)**

“The quiescent intracluster medium in the core of the Perseus cluster”,

HITOMI collaboration, including **M. Giustini**, **Nature 535, 117 (2016)**

“The Wide-angle Outflow of the Lensed $z = 1.51$ AGN HS 0810+2554”,

G. Chartas, M. Cappi, F. Hamann, M. Eracleous, S. Strickland, **M. Giustini**, and T. Misawa, **ApJ 824, 53 (2016)**

“Revealing a hard X-ray spectral component that reverberates within one light hour of the central supermassive black hole in Ark 564”,

M. Giustini, E. Costantini, B. De Marco, J. Svoboda, S. E. Motta, D. Proga, R. Saxton, C. Ferrigno, A. L. Longinotti, G. Miniutti, D. Grupe, S. Mathur, B. J. Shappee, J. L. Prieto, and K. Stanek, **A&A 597, 66 (2017)**

“Magnified Views of the Ultrafast Outflow of the $z = 1.51$ Active Galactic Nucleus HS 0810+2554”,

G. Chartas, F. Hamann, M. Eracleous, T. Misawa, M. Cappi, **M. Giustini**, J. C. Charlton, and M. Marvin, **ApJ 783, 57 (2014)**

“On the Diversity and Complexity of Absorption Line Profiles Produced by Outflows in Active Galactic Nuclei”,

M. Giustini and D. Proga, **ApJ 758, 70 (2012)**

“Variable X-ray absorption in the mini-BAL QSO PG 1126-041”,

M. Giustini, M. Cappi, G. Chartas, M. Dadina, M. Eracleous, G. Ponti, D. Proga, F. Tombesi, C. Vignali, and G. G. C. Palumbo, **A&A 536, 49 (2011)**

“Confirmation of and Variable Energy Injection by a Near-Relativistic Outflow in APM 08279+5255”,

G. Chartas, C. Saez, W. N. Brandt, **M. Giustini**, and G. P. Garmire, **ApJ 706, 644 (2009)**

“High velocity outflows in narrow absorption line quasars”,

G. Chartas, J. Charlton, M. Eracleous, **M. Giustini**, P. Rodriguez Hidalgo, R. Ganguly, F. Hamann, T. Misawa, and D. Tytler, **New Astronomy Reviews 53, 128 (2009)**

“On the absorption of X-ray bright broad absorption line quasars”,

M. Giustini, M. Cappi, and C. Vignali, **A&A 491, 425 (2008)**

“X-ray spectral variability in PG 1535+547: the changing look of a “soft X-ray weak” AGN”,

L. Ballo, **M. Giustini**, N. Schartel, M. Cappi, E. Jiménez-Bailón, E. Piconcelli, M. Santos-Lleó, and C. Vignali, **A&A 483, 137 (2008)**

STUDENT SUPERVISION

B.Sc. Thesis of Lucas de Vries (University of Amsterdam and SRON),

Thesis title: “X-raying a supermassive black hole wind: new XMM-Newton observations of the mini-BAL QSO PG 1126-041” **(2017)**

PUBLIC LECTURES FOR MORE THAN 100 ATTENDEES

“Venti di buchi neri ed altre meraviglie cosmiche” — invited by the cultural association “Fare Culturae” with the patronage of the City Hall for a public lecture in the city of Jesi, Italy — **28/12/2024**

“Centro de Astrobiología: los orígenes de la vida y la evolución del Universo” —

European Space Talk public lecture for the European Space Astronomy Centre Open Day — **19/10/2019**

“Our Cosmic Direction” — public lecture for the pupils and teachers of an elementary school in Addis Ababa, Ethiopia — **09/10/2019**