

SISSA Ph.D. Course in Astrophysics and Cosmology

Academic Year 2019-2020

I TERM

Introduction to General Relativity , Antonio Lanza, lanza@sissa.it, 14 Lectures, 3.5 credits (compulsory)

High Energy Astrophysics , Anna Lisa Celotti, celotti@sissa.it, 8 lectures, 2 credits (compulsory)

Cosmology: from early Universe to galaxy formation , Luigi Danese, danese@sissa.it, 14 lectures, 3.5 credits (compulsory)

Radiative Processes in Astrophysics , Francesca Perrotta, perrotta@sissa.it, 8 lectures, 2 credits (compulsory)

Computational Physics , Riccardo Valdarnini, valda@sissa.it, 8 lectures, 2 credits (compulsory)

Statistical Methods in Astrophysics and Cosmology , Andrea Lapi, lapi@sissa.it, 14 lectures, 3.5 credits (compulsory)

Stellar Structure and Evolution , Alessandro Bressan, sbressan@sissa.it, 14 lectures, 3.5 credits (compulsory)

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II TERM

Dark Matter , Paolo Salucci, salucci@sissa.it, 12 lectures, 3 credits

Gamma Ray Bursts and Cosmic Rays , Lara Nava, nava@oats.inaf.it, 6 lectures, 1.5 credit

Advanced GR , Stefano Liberati, liberati@sissa.it, 18 lectures, 4.5 credits

Early Universe , Sabino Matarrese, matarrese@pd.infn.it, 4 lectures, 1 credit

Large Scale Structure , Riccardo Valdarnini, valda@sissa.it, 4 lectures, 1 credit

Structure formation , Matteo Viel, viel@sissa.it, 12 lectures, 3 credits

Linear Cosmological Perturbations & CMB anisotropies , Carlo Baccigalupi, bacci@sissa.it, 12 lectures, 3 credits

Inter-Galactic Medium , Stefano Cristiani, stefano.cristiani@oats.inaf.it, 6 lectures, 1.5 credits

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III TERM

Compact objects , John Miller, jcm@astro.ox.ac.uk, 8 lectures, 2 credits

Data Analysis in Astrophysics , Giancarlo Ghirlanda, giancarlo.ghirlanda@brera.inaf.it, 2 lectures, 0.5 credits

Star Dynamics: Explosive Nucleosynthesis , Marco Limongi, marco.limongi@inaf.it, 4 lectures, 1 credit

Sub-mm Astronomy , Marcella Massardi, massardi@ira.inaf.it, 6 lectures, 1.5 credit

Astrobiology , Giovanni Vladilo, vladilo@oats.inaf.it, 8 lectures, 2 credit

B-modes in CMB polarization , Nicoletta Krachmalnicoff, nkrach@sissa.it, 2 lectures, 0.5 credits

Dynamics of Black Holes in Star Clusters , Mario Spera, mario.spera@live.it, 4 lectures, 1 credit

Gravitational Waves , Enrico Barausse, barausse@sissa.it, 8 lectures, 2 credits

GR & LSS , Eleonora Villa, evilla@sissa.it, 4 lectures, 1 credit

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Room 135

Date/Time	08:30-10:00	10:00-11:30	11:30-13:00
1-ott-19			
2-ott-19		APC Welcome Meeting	
3-ott-19			
4-ott-19			
5-ott-19			
6-ott-19			
7-ott-19			
8-ott-19	Intro to GR 1	Statistical Methods for Astro/Cosmo 1	Stellar Structure and Evolution 1
9-ott-19	Radiative Processes 1	Computational Physics 1	Cosmology 1
10-ott-19	Intro to GR 2	Statistical Methods for Astro/Cosmo 2	Stellar Structure and Evolution 2
11-ott-19			
12-ott-19			
13-ott-19			
14-ott-19			
15-ott-19	Intro to GR 3	Statistical Methods for Astro/Cosmo 3	Stellar Structure and Evolution 3
16-ott-19	Radiative Processes 2	Computational Physics 2	Cosmology 2
17-ott-19	Intro to GR 4	Statistical Methods for Astro/Cosmo 4	Stellar Structure and Evolution 4
18-ott-19			
19-ott-19			
20-ott-19			
21-ott-19			
22-ott-19	Intro to GR 5	Statistical Methods for Astro/Cosmo 5	Stellar Structure and Evolution 5
23-ott-19		Computational Physics 3	Cosmology 3
24-ott-19	Intro to GR 6	Statistical Methods for Astro/Cosmo 6	Stellar Structure and Evolution 6
25-ott-19			
26-ott-19			
27-ott-19			
28-ott-19			
29-ott-19	Intro to GR 7	Statistical Methods for Astro/Cosmo 7	Stellar Structure and Evolution 7
30-ott-19	Radiative Processes 3	Computational Physics 4	Cosmology 4
31-ott-19	Intro to GR 8	Statistical Methods for Astro/Cosmo 8	Stellar Structure and Evolution 8
1-nov-19			
2-nov-19			
3-nov-19			
4-nov-19			
5-nov-19	Intro to GR 9	Statistical Methods for Astro/Cosmo 9	Stellar Structure and Evolution 9
6-nov-19	Radiative Processes 4	Computational Physics 5	Cosmology 5
7-nov-19	Intro to GR 10	Statistical Methods for Astro/Cosmo 10	Stellar Structure and Evolution 10
8-nov-19			
9-nov-19			
10-nov-19			
11-nov-19			
12-nov-19	Intro to GR 11	Statistical Methods for Astro/Cosmo 11	Stellar Structure and Evolution 11
13-nov-19	Radiative Processes 5	Computational Physics 6	Cosmology 6
14-nov-19	Intro to GR 12	Statistical Methods for Astro/Cosmo 12	Stellar Structure and Evolution 12
15-nov-19			
16-nov-19			
17-nov-19			
18-nov-19			
19-nov-19	SISSA Welcome Day		
20-nov-19	Radiative Processes 6	Computational Physics 7	Cosmology 7
21-nov-19	Intro to GR 13	Statistical Methods for Astro/Cosmo 13	Stellar Structure and Evolution 13

22-nov-19			
23-nov-19			
24-nov-19			
25-nov-19	Intro to GR 14	Statistical Methods for Astro/Cosmo 14	Stellar Structure and Evolution 14
26-nov-19	Radiative Processes 7	High-Energy Astrophysics 1	Computational Physics 8
27-nov-19	Radiative Processes 8	High-Energy Astrophysics 2	Cosmology 8
28-nov-19			
29-nov-19			
30-nov-19			
1-dic-19			
2-dic-19			
3-dic-19	Adv. Neural Networks (Krachmalnicoff)	High-Energy Astrophysics 3	Cosmology 9
4-dic-19	Adv. Neural Networks (Krachmalnicoff)	High-Energy Astrophysics 4	Cosmology 10
5-dic-19			
6-dic-19			
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9-dic-19			
10-dic-19		High-Energy Astrophysics 5	Cosmology 11
11-dic-19		High-Energy Astrophysics 6	Cosmology 12
12-dic-19			
13-dic-19			
14-dic-19			
15-dic-19			
16-dic-19			
17-dic-19	How to give talks & write papers (Donevski)	High-Energy Astrophysics 7	Cosmology 13
18-dic-19	How to give talks & write papers (Donevski)	High-Energy Astrophysics 8	Cosmology 14
19-dic-19		APC Brainstorming (Kahoot Quiz)	
20-dic-19			
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31-dic-19	END OF I TERM		
1-gen-20			
2-gen-20			
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6-gen-20			
7-gen-20			Early Universe 1
8-gen-20			Early Universe 2
9-gen-20			Early Universe 3
10-gen-20			Early Universe 4
11-gen-20			
12-gen-20			
13-gen-20			Lin. Cosm. Pert. 1
14-gen-20		Dark Matter 1	Advanced GR 1
15-gen-20		Large Scale Structure 1	Lin. Cosm. Pert. 2

16-gen-20		Dark Matter 2	Advanced GR 2
17-gen-20			
18-gen-20			
19-gen-20			
20-gen-20			Lin. Cosm. Pert. 3
21-gen-20		Dark Matter 3	Advanced GR 3
22-gen-20		Large Scale Structure 2	Lin. Cosm. Pert. 4
23-gen-20		Dark Matter 4	Advanced GR 4
24-gen-20			
25-gen-20			
26-gen-20			
27-gen-20			Lin. Cosm. Pert. 5
28-gen-20		Dark Matter 5	Advanced GR 5
29-gen-20		Large Scale Structure 3	Lin. Cosm. Pert. 6
30-gen-20		Dark Matter 6	Advanced GR 6
31-gen-20			
1-feb-20			
2-feb-20			
3-feb-20			Lin. Cosm. Pert. 7
4-feb-20		Dark Matter 7	Advanced GR 7
5-feb-20		Large Scale Structure 4	Lin. Cosm. Pert. 8
6-feb-20		Dark Matter 8	Advanced GR 8
7-feb-20			
8-feb-20			
9-feb-20			
10-feb-20		GRBs + CRs 1	Lin. Cosm. Pert. 9
11-feb-20		Dark Matter 9	Advanced GR 9
12-feb-20		GRBs + CRs 2	Lin. Cosm. Pert. 10
13-feb-20		Dark Matter 10	Advanced GR 10
14-feb-20			
15-feb-20			
16-feb-20			
17-feb-20		GRBs + CRs 3	Advanced GR 11
18-feb-20		Dark Matter 11	Advanced GR 12
19-feb-20		GRBs + CRs 4	Advanced GR 13
20-feb-20		Dark Matter 12	Advanced GR 14
21-feb-20			
22-feb-20			
23-feb-20			
24-feb-20		GRBs + CRs 5	Lin. Cosm. Pert. 11
25-feb-20		Inter-Galactic Medium 1	Lin. Cosm. Pert. 12
26-feb-20		GRBs + CRs 6	Lin. Cosm. Pert. 13
27-feb-20		Inter-Galactic Medium 2	Lin. Cosm. Pert. 14
28-feb-20			
29-feb-20			
1-mar-20			
2-mar-20		Inter-Galactic Medium 3	Structure formation 1
3-mar-20		Inter-Galactic Medium 4	Advanced GR 15
4-mar-20			Structure formation 2
5-mar-20			Advanced GR 16
6-mar-20			
7-mar-20			
8-mar-20			
9-mar-20		Inter-Galactic Medium 5	Structure formation 3

10-mar-20		Inter-Galactic Medium 6	Advanced GR 17
11-mar-20			Structure formation 4
12-mar-20			Advanced GR 18
13-mar-20			
14-mar-20			
15-mar-20			
16-mar-20			Structure formation 5
17-mar-20			Structure formation 6
18-mar-20			Structure formation 7
19-mar-20			Structure formation 8
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22-mar-20			
23-mar-20			Structure formation 9
24-mar-20			Structure formation 10
25-mar-20			Structure formation 11
26-mar-20			Structure formation 12
27-mar-20			
28-mar-20	END OF II TERM		
29-mar-20			
30-mar-20		Explosive Nucleosynthesis 1	Compact Objects 1
31-mar-20		Explosive Nucleosynthesis 2	Compact Objects 2
1-apr-20		Explosive Nucleosynthesis 3	Compact Objects 3
2-apr-20		Explosive Nucleosynthesis 4	Compact Objects 4
3-apr-20			
4-apr-20			
5-apr-20			
6-apr-20	Astrobiology 1	Data Analysis in Astrophysics 1	Compact Objects 5
7-apr-20	Astrobiology 2	Data Analysis in Astrophysics 2	Compact Objects 6
8-apr-20	Astrobiology 3	B-modes in CMB polarization 1	Compact Objects 7
9-apr-20	Astrobiology 4	B-modes in CMB polarization 2	Compact Objects 8
10-apr-20			
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14-apr-20			Astrobiology 5
15-apr-20			Astrobiology 6
16-apr-20			Astrobiology 7
17-apr-20			Astrobiology 8
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20-apr-20		GR and LSS 1	
21-apr-20		GR and LSS 2	
22-apr-20		GR and LSS 3	
23-apr-20		GR and LSS 4	
24-apr-20			
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27-apr-20		Dynamics of BHs in Star Clusters 1	Gravitational Waves 1
28-apr-20		Dynamics of BHs in Star Clusters 2	Gravitational Waves 2
29-apr-20		Dynamics of BHs in Star Clusters 3	Gravitational Waves 3
30-apr-20		Dynamics of BHs in Star Clusters 4	Gravitational Waves 4
1-mag-20			
2-mag-20			

<i>3-mag-20</i>			
<i>4-mag-20</i>		Sub-mm Astronomy 1	Gravitational Waves 5
<i>5-mag-20</i>		Sub-mm Astronomy 2	Gravitational Waves 6
<i>6-mag-20</i>	Sub-mm Astronomy 3	Sub-mm Astronomy 4	Gravitational Waves 7
<i>7-mag-20</i>	Sub-mm Astronomy 5	Sub-mm Astronomy 6	Gravitational Waves 8
<i>8-mag-20</i>			
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END OF III TERM			