1. Record Nr. UNINA9910136794403321

Titolo	Autism Spectrum Disorders [[electronic resource]] : from genotypes to phenotypes / / topic editors: Valsamma Eapen, Andrew J. Whitehouse, Charles Claudianos and Rudi Crncec
Pubbl/distr/stampa	Frontiers Media SA, 2015 [Lausanne, Switzerland] : , : Frontiers Media SA, , 2015
Descrizione fisica	1 online resource (93 pages) : illustrations; digital, PDF file(s)
Collana	Frontiers Research Topics. Frontiers in Human Neuroscience.
Soggetti	Autism spectrum disorders Autism - Pathophysiology Autism - Research Neuropsychiatry Neurosciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Sommario/riassunto	This Research Topic will review and summarize the pathogenesis of Autism Spectrum Disorder (ASD) that underpin the translation of genetic vulnerability to clinically significant symptoms. Available research data in ASD suggests that it is a “neural connectivity disorder” and that the deficits in social cognition and related neurocognitive functions result from reduced synchronization between key brain regions known as the “social brain”. These interconnected neural systems can be understood through the relationship between functionally relevant anatomic areas and neurochemical pathways, the programming of which are genetically modulated during neurodevelopment and mediated through a range of neuropeptides and interacting neurotransmitter systems. Elucidating the underlying molecular mechanisms can provide an invaluable window for understanding the neural wiring that regulates higher brain functions and consequent clinical phenotypes. ASD is a heterogeneous condition

and clinical heterogeneity is linked to genetic heterogeneity. Phenotypic variability within ASD and the phenotypic overlap between ASD and other neurodevelopmental disorders such as Tourette Syndrome, ADHD, Schizophrenia, language disorder and intellectual disability could be associated with the fact that the genes converge on a common neurodevelopmental pathway involved in synapse development/maintenance and circuitry formation through effects on neurogenesis, axon guidance in dendritic projections or neuronal migration. Thus defects in synaptic development can result in abnormal development across disorders and broad domains but yet carry distinct neurocognitive and behavioral profiles. The penetrance of the different co-morbidities may in turn be related to the dose effects of gene abnormality or the timing of events when different neuronal regions and circuitry are being formed, as may be the influence of gender, intrauterine and perinatal events, epigenetics and other environmental modulators. In keeping with the multi modal and diverse origins of neurodevelopmental disorders, this review will explore the genetic underpinnings and environmental modulation in the aetiology; neural substrates, biomarkers and endophenotypes that underlie clinical characteristics of ASD; as well as neurochemical pathways and pathophysiological mechanisms that pave the way for therapeutic interventions. Furthermore, since genetically mediated deficits and consequent functional impairments involve activity-dependent synapse development that depends on postnatal learning and experience, early intervention can prevent or reduce the risk of these deficits cascading into a trajectory toward full expression of the disorder by exploiting the neuronal maturation and brain plasticity. In addition to reviewing the current state of evidence in the literature, there will be a significant focus on ongoing original work as well as hypotheses and directions for future research.

2. Record Nr. UNINA9910731478903321

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Titolo	Multilayer Magnetic Nanostructures : Properties and Applications / / by Alexander S. Sigov
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	981-19-6246-4
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (147 pages)
Collana	Springer Aerospace Technology, , 1869-1749
Disciplina	620.11597
Soggetti	Condensed matter Magnetic materials Aerospace engineering Astronautics Materials - Microscopy Solid state physics Condensed Matter Physics Magnetic Materials Aerospace Technology and Astronautics Microscopy Electronic Devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Chapter 1. Physical basis of the appearance of magnetic nanostructures -- Chapter 2. Frustrations of exchange interaction -- Chapter 3. Domain walls and phase diagram of a spin-valve system with a non-magnetic layer -- Chapter 4. A thin film of a ferromagnet on an antiferromagnetic substrate. Uncompensated section -- Chapter 5. Compensated cross-section -- Chapter 6. Behavior in a magnetic field -- Chapter 7. Spin-valve structure ferromagnet-antiferromagnet-ferromagnet -- Chapter 8. Surface spin-flop transition in antiferromagnet -- Conclusion.
Sommario/riassunto	This book presents relevant issues for the development of computer technology in general and civil aviation in particular, related to the promising task of developing magnetoresistive memory. In modern

conditions of constantly increasing air traffic intensity, it is necessary to use both on board the aircraft and in ground services computing devices that guarantee the required level of flight safety. The book shows that in the multilayer ferromagnet-antiferromagnet system, the behavior of magnetic parameters in layers of nanometer thickness is largely determined by frustrations. The monograph provides not only a complete analysis of the current state of magnetic nanostructures but also predicts new types generated by exchange interaction frustrations. The phase diagrams "layer thickness (layers)—roughness" of a thin ferromagnetic film on an antiferromagnetic substrate and a spin-valve system ferromagnet-antiferromagnet-ferromagnet are constructed taking into account the energy of single-ion anisotropy. The book presents experimental results that confirm the existence of a new type of domain walls. It is shown that the detected domain walls appear exactly at the locations of the atomic steps, and their thickness increases in proportion to the film thickness with a proportionality coefficient of the order of one. Special attention using mathematical models is placed for optimal orientation of spins at a smooth interface in the case of a compensated cross section of an antiferromagnet and an uncompensated cross section. The constructed phase diagrams and models are compared with the experiments. It is thus concluded that scanning tunneling microscopy (STM) makes it possible to study domain walls generated by frustration on the surface of the structure.