



**LUCRĂRI ȘTIINȚIFICE PREZENTATE LA CONFERINȚE
ȘI / SAU PUBLICATE ÎN PUBLICAȚII DE SPECIALITATE
2014**

Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
1.	SĂPTĂMÂNA MINERULUI Ianuarie 2014, Rusia	Caracterizarea regimului emanațiilor de gaze la mina de petrol Sărata Monteoru	Eng. Emeric Chiuzan, PhD. Eng. Constantin Lupu, Eng. Dorel Tamaș	
		Efectele fenomenelor tranzitorii asupra stației principale de aeraj	PhD. Eng. Doru Cioclea, PhD. Eng. Lupu Constantin, Eng. Ion Gherghe, PhD. Eng. Emilian Ghicioi Student PhD. Marius Șuvăr	



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
2.	A 5-a CONFERINȚĂ NAȚIONALĂ DE INGINERIE SEISMICĂ (5CNIS) ȘI PRIMA CONFERINȚĂ NAȚIONALĂ DE INGINERIE SEISMICĂ ȘI SEISMOLOGIE (1CNISS) 19 – 20 Iunie, București	Monitoring seismic waves generated by quarry blasting, to establish technical solutions to reduce their intensity.	Eng. Edward Gheorghiosu, PhD. Eng. Constantin Lupu, PhD. Eng. Emilian Ghicioi, PhD. Eng. Attila Kovacs PhD. Eng. Gabriel Vasilescu	
3	TRHACIA TECHNIKA 2014 BLASTING TECHNIQUES 2014 22 - 23 Mai Kongresové centrum ACADEMIA, Stará Lesná, SLOVACIA	Assessment the impact against the environment of the toxic gases generated by detonating of explosives	PhD. Eng. Drăghici Angelica, PhD. Eng. Găman George Artur, PhD. Eng. Kovacs Attila, PhD. Eng. Kovacs Marius, PhD. Eng. Simion Sorin	Conference Proceedings from the International Conference BLASTING TECHNIQUES Stará Lesná, SLOVACIA 2014 ISBN 978-80-970265-6-1
		Rate determination burning pyrotechnic composition used to manufacture fireworks in accordance with harmonized standards	PhD. Eng. Edward Gheorghiosu, PhD. Eng. Emilian Ghicioi, PhD. Eng..Attila Kovacs, PhD. Eng. Gabriel Vasilescu, Student PhD. Ciprian Jitea	



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
		Specific risk assessment at demolition activity of industrial / civil objectives with the help of explosives	PhD. Eng. Gabriel Vasilescu, PhD. Eng. Emilian Ghicioi, PhD. Eng. Attila Kovacs, Student PhD. Edward Gheorghiosu, Student PhD. Daniela Rus	Conference Proceedings from the International Conference BLASTING TECHNIQUES Stará Lesná, SLOVACIA 2014 ISBN 978-80-970265-6-1
		Assembly of equipments for research and prevention of explosion phenomena in industrial spaces specific to operations with explosives for civil uses/pyrotechnical compositions	PhD. Eng. Attila Kovacs, PhD. Eng. Emilian Ghicioi, PhD. Eng. Gabriel Vasilescu, Student PhD. Edward Gheorghiosu, Student PhD. Ilie-Ciprian Jitea	
4	A X-a ediție a CONFERINȚEI INTERNAȚIONALE ELSEDIMA 18 - 19 Septembrie CLUJ-NAPOCA	„Air humidity – a significant factor on ignition sensitivity of gaseous explosive atmospheres”	PhD. Eng. Marius Darie, PhD. Eng. Sorin Burian, PhD. Eng. Jeana Ionescu , PhD. Eng. Tiberiu Csaszar ,PhD. Eng. Lucian Moldovan, Eng. Adriana Andriș	The 10 th ELSEDIMA International Conference BOOK of ABSTRACTS Environmental Legislation, Safety Engineering and Disaster Management, Cluj-Napoca ISBN 978-973-606-526-183-9
		C.O.V. Limiting and explosion protection in terminals and vehicle fuel distribution installations	PhD. Eng. Adrian Jurca, PhD. Eng. Mihaela Păräian, PhD. Eng. Emilian Ghicioi, PhD. Eng. Niculina Vătavu, PhD. Eng. Leonard Lupu, PhD. Eng. Florin Păun	



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
5	A XVI-a ediție a Conferinței de MINERIT-METALURGIE ȘI GEOLOGIE 3 - 6 Aprilie Odorheiu Secuiesc, Jud. HARGHITA	Cercetări privind identificarea de noi indici de foc utilizabili în condițiile aplicării tehnologiei de inertizare cu azot.	Student PhD. Cristian Tomescu, PhD. Eng. Ion Toth, PhD. Eng. Doru Cioclea, Student PhD. chem. Szollosi Andrei	16 th Mining, Metallurgy and Geology Conference Odorheiu Secuiesc, Jud. HARGHITA 2014 ISSN 1842-9440
6	INTERNATIONAL CONFERENCE ON DRILLING AND BLASTING 16 - 18 Septembrie Balatonkenese HUNGARY	General considerations on the determination of the thermal stability of explosives for civil uses	PhD. Eng. Emilian Ghicioi, PhD. Eng. Gabriel Vasilescu, PhD. Eng. Attila Kovacs, PhD. Eng. Constantin Lupu, Student PhD. Edward Gheorghiosu, Student PhD. Daniela-Carmen Rus, Eng. Ștefan Iliei	
7	XXII INTERNATIONAL CONFERENCE "ECOLOGICAL TRUTH,, ECO-IST'14 10 - 13 Iunie Hotel Jezero, Bor Lake, Bor Serbia	Aspects of the risk of explosion in biofuel production	PhD. Eng. Florin Adrian Păun, PhD. Eng. Mihaela Păräian, PhD. Eng. Emilian Ghicioi, PhD. Eng. Adrian Jurca	Proceedings XXII INTERNATIONAL CONFERENCE ECOLOGICAL TRUTH EcoIst'14 Bor Lake, Bor, SERBIA 2014 ISBN 978-86-6305-021-1



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
8	14th INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC GEOCONFERENCE & EXPO SGEM 2014 17 – 26 Iunie Albena, Bulgaria	Study on the particular conditions of the mining ventilation by using numerical methods	Phd.Eng. Stud. Marius Suvar, PhD.Eng. George Artur Gaman, PhD.Eng. Constantin Lupu, PhD.Eng. Emilian Ghicioi, PhD.Eng. Doru Cioclea, PhD.Eng. Stud. Nicolae Vlasin, Univ. Prof. Victor Arad	14 th GeoConference on SCIENCE AND TECHNOLOGIES IN GEOLOGY, EXPLORATION AND MINING Volume III Albena, Bulgaria 2014 ISBN 978-619-7105-09-4 ISSN 1314-2704
		Verifications of the electric safety parameters of blasting machines used at blasting works in underground mines	PhD.Eng. Leonard Lupu, PhD.Eng. Adrian Jurca, PhD.Eng. Emilian Ghicioi, PhD.Eng. Sorin Burian	14 th GeoConference on SCIENCE AND TECHNOLOGIES IN GEOLOGY, EXPLORATION AND MINING Volume III Albena, Bulgaria 2014 ISBN 978-619-7105-09-4 ISSN 1314-2704
		Influence of volatile organic compound emissions on the environment and aspects regarding the legislation in the field	PhD.Eng. George Artur Găman, PhD.Eng. Angelica Călămar, Eng. Gheorghe Gheție, PhD.Eng. Marius Kovacs, PhD.Eng. Lorand Toth	14 th GeoConference on ECOLOGY, ECONOMICS, EDUCATION AND LEGISLATION Volume II Albena, Bulgaria 2014 ISBN 978-619-7105-18-6 ISSN 1314-2704
		Research on technical inspection of cylinders filled with compressed gases, liquefied or dissolved under pressure using ultrasonic technology	PhD.Stud. Cosmin Ilie, PhD.Eng. George Artur Gaman, PhD.Eng. Daniel Pupazan, PhD.Eng. Angelica Călămar, PhD.Eng. Sorin Simion, PhD. Eng. Stud. Alin Irimia	14 th GeoConference on NANO, BIO AND GREEN - TECHNOLOGIES FOR A SUSTAINABLE FUTURE Volume I Albena, Bulgaria 2014 ISBN 978-619-7105-20-9 ISSN 1314-2704



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
		Simulation of a fire occurred upon the ventilation network of Praid salt mine	PhD.Eng. Doru Cioclea, Eng. Ion Gherghe, PhD.Eng. Constantin Lupu, PhD.Eng. Stud. Marius Suvar, Eng. Corneliu Boanta, Eng. Florin Radoi, PhD. Eng. Stud. Cristian Tomescu, PhD.Eng. Stud. Vlad Pasculescu	14 th GeoConference on SCIENCE AND TECHNOLOGIES IN GEOLOGY, EXPLORATION AND MINING Volume III Albena, Bulgaria 2014 ISBN 978-619-7105-09-4 ISSN 1314-2704
		Laboratory methods for determining explosion parameters for underground dangerous mixtures	PhD. Chem. Stud. Maria Prodan, PhD. Eng. Constantin Lupu, PhD.Eng. Emilian Ghicioi, PhD.Eng. Doru Cioclea, PhD.Eng. Stud. Andrei Szollosi, PhD.Eng. Stud. Irina Nalboc	14 th GeoConference on SCIENCE AND TECHNOLOGIES IN GEOLOGY, EXPLORATION AND MINING Volume III Albena, Bulgaria 2014 ISBN 978-619-7105-09-4 ISSN 1314-2704
		Influence of environmental conditions on test mixtures used to test equipment with type of protection intrinsic safety	PhD.Eng. Sorin Burian, PhD.Eng. Jeana Ionescu, PhD.Eng. Emilian Ghicioi, PhD.Eng. Marius Darie, PhD.Eng. Lucian Moldovan, PhD.Eng. Tiberiu Csaszar	14 th GeoConference on SCIENCE AND TECHNOLOGIES IN GEOLOGY, EXPLORATION AND MINING Volume I Albena, Bulgaria 2014 ISBN 978-619-7105-07-0 ISSN 1314-2704
		Considerations regarding the improvement of maintenance of explosion proof electric motors in order to enhance the reliability in exploitation	PhD.Eng. Mihai Magyari, PhD.Eng. Sorin Burian, PhD.Eng. Martin Friedmann, PhD.Eng. Lucian Moldovan, PhD. Stud. Dragos Fotau, PhD.Eng. Cosmin Colda	14 th GeoConference on SCIENCE AND TECHNOLOGIES IN GEOLOGY, EXPLORATION AND MINING Volume I Albena, Bulgaria 2014 ISBN 978-619-7105-07-0 ISSN 1314-2704



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
		Ventmex – portable software for mine ventilation characteristic curves	PhD.Eng. Stud. Nicolae-Ioan Vlasin, PhD.Eng. George Artur Gaman, PhD.Eng Constantin Lupu, PhD.Eng. Emilian Ghicioi, Univ.Prof.PhD. Eugen Cozma	14 th GeoConference on SCIENCE AND TECHNOLOGIES IN GEOLOGY, EXPLORATION AND MINING Volume III Albena, Bulgaria 2014 ISBN 978-619-7105-09-4 ISSN 1314-2704
		Computational study in the civil use explosives area	PhD.Eng. Emilian Ghicioi, PhD.Eng. Stud. Ilie-Ciprian Jitea, PhD.Stud. Nicolae-Ioan Vlasin, PhD.Eng. Attila Kovacs, PhD.Eng. Gabriel Vasilescu, PhD. Eng. Edward Gheorghiosu, PhD. Chem. Stud. Maria Prodan	14 th GeoConference on SCIENCE AND TECHNOLOGIES IN GEOLOGY, EXPLORATION AND MINING Volume III Albena, Bulgaria 2014 ISBN 978-619-7105-09-4 ISSN 1314-2704
9	INTERNATIONAL MULTIDISCIPLINARY SYMPOSIUM "UNIVERSITAREA SIMPRO" 2014 10-11 Octombrie Petroşani	Research on the changes of the rescuers heart rate during training	PhD. Eng. Daniel Pupăzan, PhD. Eng. George Artur Găman, PhD. Eng. Cosmin Ilie, PhD. Eng. Student Alin Irimia	6 th INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC SYMPOSIUM UNIVERSITARIA SIMPRO Petroşani 2014 ISSN-L 1842-4449 ISSN 2344-4754
		Aspects regarding monitoring emissions of air pollutants	PhD. Eng. Călămar Angelica, PhD. Eng. George Artur Găman, PhD. Eng. Kovacs Marius, PhD. Eng. Toth Lorand	
		Develop and implement the procedures for sampling, assessment and evaluation of the environmental component of water, soil to determine the impact on the environment	PhD. Eng. Kovacs Marius, Eng. Gheție Gheorghe, PhD. Eng. Toth Lorand , PhD. Eng. Călămar Angelica	
		The use of robots in underground rescue actions	Phd. Eng. Student Alin Irimia, PhD. Eng. George Artur Găman, PhD. Eng. Daniel Pupăzan, PhD. Eng. Cosmin Ilie	



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
		Influence of gas generated by detonation of explosives for civil uses, on the work environment	PhD. Eng. Attila Kovacs, Eng. Cristian Raul Cioară, PhD. Eng. Gabriel Vasilescu, PhD. Eng. Emilian Ghicioi, PhD. Eng. Student Edward Gheorghiosu, PhD. Eng. Student Daniela-Carmen Rus, PhD. Eng. Student Ilie – Ciprian Jitea	
		Increasing the security on performing blasting in open-cast mining, with the ensurance of seismic protection to the industrial / civil objectives situated in their vicinity	PhD. Eng. Gabriel Vasilescu, PhD. Eng. Emilian Ghicioi, PhD. Eng. Attila Kovacs, PhD. Eng. Student Edward Gheorghiosu, Eng. Ștefan Ilici, PhD. Eng. Student Ilie – Ciprian Jitea, Eng. Sorin Bordoș	6th INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC SYMPOSIUM UNIVERSITARIA SIMPRO Petroșani 2014 ISSN-L 1842-4449 ISSN 2344-4754
		Experimental results for internal resistance variability of testing apparatus for low current circuits in explosive atmospheres	PhD. Eng. Marius Darie, PhD. Eng. Sorin Burian , PhD. Eng. Jeana Ionescu, PhD. Eng. Tiberiu Csaszar, PhD. Eng. Lucian Moldovan, Eng. Adriana Andriș	
		Prior establishment of working environment characteristics in case of a low intensity explosion occurrence in the underground	PhD. Eng. Cioclea Doru, Phd. Eng. Lupu Constantin, Eng. Gherghe Ion, Eng. Rădoi Florin, Eng. Boantă Cornelius, Student PhD. Șuvar Marius, Student PhD. Vlasin Nicolae, Student PhD. Tomescu Cristian, Student PhD. Păsculescu Vlad	
		Testing the resistance of the protective clothing against chemical agents in order to assess their conformity.	Student PhD. Nălboc Irina, PhD. Eng. Lupu Constantin, Student PhD. Prodan Maria, Student PhD. Szolloși Moța Andrei	



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
		Necessity to verify the ventilation systems operating in potentially explosive and/or toxic environments	Eng. Florin Rădoi, PhD. Eng. Doru Cioclea, Phd. Eng. Lupu Constantin, Eng. Ion Gherghe, Eng. Cornelius Boantă, Eng. Emeric Chiuzan	
		Analysis of aerodynamic parameters specify a main local stations	Student PhD. Marius Simion Morar, PhD. Eng. Doru Cioclea, Eng. Ion Gherghe, Eng. Adrian Matei	
		Plotting the characteristic curves for mine ventilation fans using the „VENTMEX” Software	Eng. Cornelius Boantă, Phd. Eng. Lupu Constantin, Student PhD. Nicolae-Ioan Vlasin, PhD. Eng. Doru Cioclea, Eng. Ion Gherghe	
		Considerations regarding the torque test for bushings and thermal shock test, applicable to electrical equipment designed for use in explosive atmospheres	PhD. Eng. Moldovan Lucian, PhD. Eng. Burian Sorin, PhD. Eng. Friedmann Martin, PhD. Eng. Magyari Mihai, Student PhD. Fotău Dragoș, PhD. Eng. Colda Cosmin	6th INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC SYMPOSIUM UNIVERSITARIA SIMPRO Petroșani 2014 ISSN-L 1842-4449 ISSN 2344-4754
		Analysis of faults in explosion proof electric drives and concerns for modernizing the maintenance and repairs of motors operating in explosive atmospheres	PhD. Eng. Magyari Mihai, PhD. Eng. Burian Sorin, PhD. Eng. Friedmann Martin, PhD. Eng. Moldovan Lucian, Student PhD. Fotău Dragoș, PhD. Eng. Colda Cosmin	
		Emotional intelligence and job performance	Psih. Izabella Eisler	



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
10	24th INTERNATIONAL CONFERENCE NOISE AND VIBRATION AVMS-2014 29 – 31 Octombrie Nis, Serbia	Equipment service, professional noise exposure reduction factor	PhD. Eng. Simion Sorin, PhD. Eng. Artur G. Găman, PhD. Eng. Pupăzan Daniel, PhD. Eng. Angelica Călămar	24th INTERNATIONAL CONFERENCE NOISE AND VIBRATION pp.181 – 184 29 – 31 Octombrie 2014 Nis, Serbia ISBN 978-86-6093-062-2
11	AL XVI-lea SIMPOZION TINERII ȘI CERCETAREA MULTIDISCIPLINARĂ ISYPMR – 2014 ACM-V 13 – 14 Noiembrie 2014 Arad, România	Aspects regarding risks generated by workers exposure to electromagnetic fields Noise as a risk factor in the preparation of coal industry Model assessment of professional risk associated to human error (risk@human-error), specific for demolition of industrial objectives/civil with explosives Increasing the level of the occupational safety to use of pyrotechnic articles category 4 Testing the permeation of the protective footwear against chemical agents in order to assess their conformity Aspects regarding mechanical strength of technical equipment intended use in explosive atmospheres	PhD. Eng. Sorin Simion, PhD. Eng. George Artur Găman, PhD. Eng. Lorand Toth, PhD. Eng. Marius Kovacs, Psih. Izabella Eisler PhD. Stud. Eng. Alin Irimia, PhD. Eng. George Artur Găman, PhD. Eng. Daniel Pupazan, Eng. Andrei Gireadă PhD. Stud. Eng. Ciprian Jitea, Psih. Izabella Eisler, PhD. Eng. Gabriel Vasilescu, PhD. Eng. Emilian Ghicioi, Eng. Sorin Bordos Eng. Ștefan Ilaci, PhD. Eng. Gabriel Vasilescu, PhD. Eng. Emilian Ghicioi, PhD. Eng. Attila Kovacs, PhD. Stud. Eng. Daniela Rus PhD. Stud. Irina Nălboc, PhD. Stud. Maria Prodan, PhD. Stud. Andrei Szolloși Moță PhD. Eng. Leonard Lupu, PhD. Eng. Adrian Jurca, PhD. Eng. Florin Păun, Eng. Florina Muntean – Berzan	Lucrările celui de al XVI-lea Simpozion "TINERII ȘI CERCETAREA MULTIDISCIPLINARĂ" Timișoara, România 2014 ISSN 1843-6609



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
		Increasing the occupational health and safety level by monitoring the coal faces with the help of fire indexes	Eng. Adrian Matei, PhD Eng. Lupu Constantin, PhD Eng. Doru Cioclea, Eng. Ion Gherghe, PhD Stud. Eng. Marius Simion Morar, PhD Stud. Eng. Cristian Tomescu	Lucrările celui de al XVI-lea Simpozion "TINERII ȘI CERCETAREA MULTIDISCIPLINARĂ" Timișoara, România 2014 ISSN 1843-6609
		Integration of CFD simulation techniques into the process for classification of hazardous Ex areas generated by flammable gases	PhD Stud. Eng. Vlad – Mihai Păsculescu, PhD Stud. Eng. Nicolae – Ioan Vlasin, PhD Stud. Eng. Marius Cornel Șuvar	
		Specific requirements regarding the torque test for bushings and thermal shock test, used to assess electrical equipments designed to operate in explosive atmospheres	Eng. Moldovan Lucian, PhD. Eng. Burian Sorin, PhD. Eng. Friedmann Martin, PhD. Eng. Magyari Mihai, PhD. Stud. Eng. Fotău Dragoș	
12	SMART APPLICATIONS & TECHNOLOGIES FOR ELECTRONIC ENGINEERING, SATEE 2014 16-18 Octombrie 2014 Alba Iulia	Realization of a performant stand for determining equivalent initiation capability for detonators with modern electronic measuring facilities	PhD Stud. Eng. Daniela Carmen Rus, PhD Eng. Attila Kovacs, PhD Eng. Emilian Ghicioi	Smart Electronic design ISBN: 978-606-613-087-5 Alba Iulia, România 2014
		The importance of non-transmission test of an internal ignition for electrical motors with type of protection flameproof enclosure „d”.	PhD Stud. Eng. Dragoș Fotău, PhD Eng. Sorin Burian , PhD Eng. Martin Friedmann , PhD Eng. Mihai Magyari , PhD Eng. Lucian Moldovan , Eng. Daniel Rad	
		Considerations regarding the evaluation of documentation and testing of low current equipment intended for use in explosive atmospheres	PhD Eng. Colda Cosmin, PhD Eng. Burian Sorin, PhD Eng. Ionescu Jeana, PhD Eng. Darie Marius, PhD Eng. Csaszar Tiberiu	



Nr. crt.	Manifestarea Științifică	Lucrare	Autor	Publicația
		Development of the testing methods for specific mechanical parameters of electric mining cables and accessories	PhD Eng. Niculina Vătavu, PhD Eng. Mihaela Păräian, PhD Eng. Adrian Jurca, PhD Eng. Florin Adrian Păun, PhD Eng. Leonard Lupu, Eng. Florina Muntean Berzan, Eng. Dan Gabor	Smart Electronic design ISBN: 978-606-613-087-5 Alba Iulia, România 2014
13	SIMPOZION INTERNATIONAL "PRIORITĂȚILE CHIMIEI PENTRU O DEZVOLTARE DURABILĂ" 30-31 Octombrie 2014 Bucuresti	Researches regarding the influence of mining waste deposits on the degree of pollution of mures river aquifers and related biological environments from hunedoara county due to drainage of the mining waters	Andrei Szollosi Mota, Irina Nălboc, Maria Prodan	Simpozionul international „PRIOCHEM” București, România 2014 ISSN 2285 – 8334 ISSN-L 2285 – 8334
		Researching the underground atmosphere of the closed mining works for ensuring the adequate security level	Irina Nalboc, Andrei Szollosi-Mota, Maria Prodan, Emeric Chiuzan, Tomescu Cristian, Adrian Matei	
		Value normalisation for pollutants concentration in gaseous effluents	Toth Lorand, Kovacs Marius, Călămar Angela, Simion Sorin	
		The contribution of the volatile organic compounds emissions to the environmental impact	Călămar Angelica, Kovacs Marius, Toth Lorand	
14	SĂPTĂMÂNA EUROPEANĂ PENTRU SĂNATATE ȘI SECURITATE ÎN MUNCĂ 15 – 17 Octombrie 2014 Arad, România	Inteligenta emoțională și stresul ocupațional	Izabella Eisler, George Artur Găman, Daniel Pupăzan, Cosmin Ilie	Managementul stresului pentru locuri de muncă sănătoase -Colecție de studii și cercetări științifice- Arad, România 2014 ISBN 978-973-752-704-2
		Managementul factorilor psihosociali, ca instrument de reducere a efectelor negative pentru sistemele de muncă complexe	Daniela Carmen Rus, Izabella Eisler, Emilian Ghicioi, Gabriel Vasilescu, Attila Kovacs, Edward Gheorghiosu	