12th International Freiberg Conference on Circular Carbon Technologies



Transformation towards Resource Efficiency and Climate Neutrality

23-26 September 2024 Shanghai, China

Preliminary Conference Program (11/07/2024)

Thursday -	- Friday, September 19-20, 2024						
12:00 -	Technical Tour 1 Ningxia						
22:00							
	day, September 21, 2024						
06:00 -	Technical Tour 2 Tengzhou						
22:00							
Monday 9	September 23, 2024						
13:30 -	Technical Tour 3 Shanghai						
16:00	recimical rour 5 shanghar						
18:00 -	Registration & Welcome Reception	n Ballro	nom Fover				
20:00	Registration & Welcome Reception	i, baiii c	om royer				
Tuesday, S	September 24, 2024						
08:30 -	Registration, Poster & Exhibition, E	Ballroor	n Foyer				
09:00							
09:00 -	Opening Ceremony						
10:30	Chair: Martin Gräbner						
	Room: Ballroom B						
09:00 -	Welcome by						
09:40	Martin Gräbner, TU Bergakademie Freiberg – Germany						
	tbc, East China University of Science	e & Te	chnology – China				
	tbc, Synfuels China Technology Co., Ltd. – China						
	Yitian Fang, Institute of Coal Chem	istry, C	hinese Academy of Sciences-S	tate Key	Laboratory of Coal		
	Conversion – China						
09:40 –	Keynote (Martin Gräbner, TU Berg	akaden	nie Freiberg – Germany)				
09:55							
09:55 –	Transformation towards green che	•	,		•		
10:10	(Roh Pin Lee, Chair of Decarboniza		•	Brander	iburg University of		
10.10	Technology Cottbus-Senftenberg –		••		Commons		
10:10 – 10:20	Conference Organization Informat	ion (Ro	n Pin Lee, TO Bergakademie F	reiberg -	- Germany)		
10:20 -	Group Picture						
10:30	Group ricture						
10:30 -	Coffee Break						
11:00	301700 270011						
11:00 -	Session 1: Industrial gasification	Sessio	on 2: TEA and LCA I	Session	n 3: CCS and CCUS		
12:40	technologies		Roh Pin Lee	Chair:	Aleksander Sobolewski		
	Chair: Martin Gräbner		: Ballroom A		Ballroom C		
	Room: Ballroom B						
11:00 -	01-1 R-GASTM gasification	02-1	Renewable olefins from	03-1	Can coal have a future as a		
11:20	technology - a		biomass gasification: MTO		low/near zero carbon		
	gasification technology		or FTO (Yan Cheng, BASF		resource supplier?		
	suitable for high ash		Advanced Chemical Co.,		(Andrew Minchener,		
	content and high ash		Ltd. – China)		International Centre for		

		flow temperature coals				Sustainable Carbon –
		(Johan van Dyk, GTI				United Kingdom)
		*				Office Kingdom)
11.20	04.0	Energy – United States)	00.0	E1	00.0	
11:20 -	01-2	Biomass: a world to win	02-2	Electrification of	03-2	Carbon capture: efficiency
11:40		(Robin Post van der		gasification-based		from an entire system
		Burg, Torrgas –		chemical recycling process		perspective (Franz
		Netherlands)		chains: techno-economic		Sebastian Krüger, Robert
				assessment (Antonia Helf,		Bosch Manufacturing
				TU Bergakademie Freiberg		Solutions GmbH –
				– Germany)		Germany)
11:40 -	01-3	A technical evaluation	02-3	Techno-economic	03-3	Status of CCS and CCUS in
12:00		through demonstration		assessment of plasma-		Romania (Sorin Anghel,
		trial of high temperature		assisted entrained flow		The National Research-
		slagging gasification		gasification for		Development Institute for
		conversion of sewage		thermochemical recycling		Marine Geology and
		sludge and the		of municipal solid waste		Geoecology – Romania)
		application of sludge-		(Sebastian Bastek, TU		
		derived slag as a		Munich – Germany)		
		sustainable construction		,,		
		aggregate in concrete				
		(Wei Ping Chan,				
		Nanyang Technological				
		University – Singapore)				
12:00 -	01-4	CHOREN entrained flow	02-4	Sorption enhanced	03-4	Direct air CO ₂ capture by
12:20	01 1	gasification – update of	02 1	chemical looping	05 1	amine functionalized resin
12.20		technology and projects		gasification for H ₂ and		adsorbent under simulated
		(Manuel Kordesee,		transportation fuel		humid air conditions:
		CHOREN		production (Bilainu		experimental and
		Industrietechnik GmbH –		Oboirien, University of		theoretical insights
				Johannesburg – South		(Guopei Zhang, Shihezi
		Germany)		Africa)		University – China)
12:20 -	01-5	Determining correlations	02-5	An assessment framework	03-5	Experimental study on the
12:40	01-3	for the hydrodynamics	02-3	on emission of pollutants	03-3	formation process of CO ₂
12.40		of bubbling fluidized		·		•
		_		from point source within		hydrate in TBAB-SDS
		beds using CFD & ANNs		an urban canopy:		(Yuchen Wu, East China
		(Ravi Ramesh, TU Delft –		Singapore case study of		University of Science and
		Netherlands)		decentralized pyrolysis		Technology – China)
				unit (Genevieve Soon,		
				Nanyang Technological		
				University – Singapore)		
12:40 – 13:40	Lunch					
13:40 -	Sessio	n 4: Entrained flow	Sessio	on 5: TEA and LCA II	Session	n 6: Mineral matter I
15:00	investi	igations	Chair:	Andrew Minchener	Chair:	Stefan Guhl
	Chair:	Guangsuo Yu	Room	: Ballroom A	Room:	Ballroom C
	Room:	Ballroom B				
13:40 -	04-1	Comprehensive particle	05-1	STEEP online tool: CO ₂	06-1	Investigations on chemical
14:00		behaviors in an		reduction through waste		hot gas cleaning of alkali,
		impinging entrained-		pyrolysis and gasification		chlorine and sulphur spe-
		flow gasifier: from		compared to incineration		cies in a sorption-
		atomization to		and petrochemicals (Roh		enhanced biomass
		deposition (Yan Gong,		Pin Lee, Brandenburg		gasification process
		East China University of		University of Technology		(Michael Müller,
	L	1	1	,	l	,

		Science and Technology		Cottbus-Senftenberg –		Forschungszentrum Jülich
		– China)		Germany)		– Germany)
14:00 -	04-2	Study on	05-2	Life cycle greenhouse gas	06-2	Crystallization-controlled
14:20		physicochemical		emission assessment of		fusion mechanism of the
		properties, distribution		pyrolysis-based chemical		amorphous fly ash from
		modes and formation		recycling of post-consumer		the Shell coal gasifier by
		mechanism of coal		waste: focus on feedstock		particle sieving (Xiaoming
		gasification fine slag in		composition, oil processing		Li, Taiyuan University of
		an industrial entrained-		and balancing consistency		Science and Technology –
		flow gasifier (Bin Liu,		(Katina Krell, TU		China)
		Ningxia University –		Bergakademie Freiberg –		
		China)		Germany)		
14:20 -	04-3	Chemical and physical	05-3	A life cycle assessment	06-3	The crystallization pathway
14:40		behaviors of		(LCA) of high temperature		and kinetics of three
		carbonaceous particles		slagging gasification		common minerals in slag
		on high-temperature		conversion of sewage		under gasification
		liquid surface (Zhongjie		sludge and sludge-derived		condition (Hao Lu, Institute
		Shen, East China		slag as an alternative		of Coal Chemistry, Chinese
		University of Science		material for sustainable		Academy of Sciences –
		and Technology – China)		construction (Sofea Al		China)
				Munawarah Binte		
				Yusoff, Nanyang		
				Technological University –		
				Singapore)		
14:40 -	04-4	Innovative probe design	05-4	Decarbonization of a	06-4	Promising combination of
15:00		for enhanced burner		district heating system – a		thermodynamic database
		flame analysis in		case study for a city with		and machine learning in
		gasification processes: a		100,000 inhabitants		predicting slag properties
		case study of		(Tomasz Iluk, Institute of		(Guixuan Wu, Institute of
		interdisciplinary		Energy and Fuel Processing		Coal Chemistry, Chinese
		engineering solutions		Technology – Poland)		Academy of Sciences –
		(Wei Fu, TU				China)
		Bergakademie Freiberg –				
		Germany)				
15:00 –	Coffee	Break				
15:30			l		Ι	
15:30 -		n 7: Fluidized bed		on 8: Waste and Co-		n 9: Gasification modeling
16:50	gasific		pyrolysis		studies Chair: Andreas Richter	
		Johan van Dyk : Ballroom B		: Grzegorz Lisak :: Ballroom A		Ballroom C
15:30 -	07-1	Pilot-scale study of	08-1	Basic investigations into	09-1	Analysis of carbon
15:50	", "	wastewood and RDF co-	00.1	the material and energetic		emission reduction in coal
13.30		gasification in HTW® 2.0		using of GRP (Stefan Thiel,		chemical processes
		gasifier (Alireza		DBI-Virtuhcon GmbH –		through full-time scale
		Mohammadi, GIDARA		Germany)		multi-objective
		ENERGY – Netherlands				optimization model
		and Bernd Epple, TU				coupling green power and
		Darmstadt – Germany)				green hydrogen (Ye Li,
						CHN Energy Economic and
						Technological Research
						Institute – China)
15:50 -	07-2	Recent advancements in	08-2	Thermochemical	09-2	Fixed-bed gasification
16:10		U-GAS® technology for a		conversion of wind turbine		modeling for automotive
10.10		circular and low carbon		blade waste: Mapping of		shredder residues (Xiushan
	1	1	l	Sec Philip of		

		economy (Bo Li, GTI		the kinetic parameters and		Tian, BASF Advanced
		Energy – United States)		heat transfer (Markus		Chemicals Co., Ltd. –
		Lifergy Officed States		Reinmöller, Technical		China)
				University of Denmark –		Cilila)
				Denmark)		
16.10	07.2	Farmer and account already	00.0	,	00.2	D
16:10 –	07-3	From cashew nut shells	08-3	Co-pyrolysis of lignite and	09-3	Dynamic characteristics
16:30		to synthesis gas –		waste plastic: products		analysis of gas
		operation of a 1 MW		distribution, hydrogen		temperature, heat duty,
		dual fluidized bed steam		transfer route and		and slag behavior in an
		gasifier and downstream		redistribution		IGCC coal gasifier in
		gas cleaning units		characteristics (Song Cao,		response to changes in the
		(Daniel Hochstöger,		East China University of		oxdiant/coal ratio
		BEST - Bioenergy and		Science and Technology –		(Joonyeong Nam,
		Sustainable		China)		Sungkyunkwan University
		Technologies GmbH –				– Republic of Korea)
		Austria)				
16:30 -	07-4	Enhancing low-carbon	08-4	Novel Insight into co-	09-4	Data reconciliation and
16:50		utilization pathways		pyrolysis interaction of		analysis of a high pressure
		through biomass		Naomaohu coal and waste		pulverized coal gasification
		gasification in fluidized		tire under varied mixing		plant (Yan Zhang,
		beds: a CFD study (Shuai		configurations via in-situ		University of Science and
		Wang, Zhejiang		Py-TOF-MS (Wenqing Lv,		Technology Beijing –
		University – China)		Dalian University of		China)
				Technology – China)		
18:00 -	Confer	ence Dinner, Radisson Blu H	lotel Sh	anghai New World		
22:00						

Wednesd	ay, Septe	ember 25, 2024						
09:00 -	Plenary Session 1: Technology innovation in industry							
10:20	Chair:	Chair: Martin Gräbner						
	Room:	Ballroom B						
09:00 – 09:20	Keynot	e by Fuchen Wang, East Chi	ina Univ	versity of Science and Technol	ogy – Ch	ina		
09:20 – 09:40		ce-Efficient Utilization: A Ne zheng Engineering Co., Limit		oter in HT-L Pressurized Coal G nina)	asificati	on Technology (Zhihong Ge,		
09:40 – 10:00		Establishment and Development of Sinopec's High Temperature Gasification Platform (Kang Wanzhong, SINOPEC Ningbo Engineering Co. Ltd. – China)						
10:00– 10:20	Improvement of Octane Number in FCC Gasoline Through the Extraction with Urea/Thiourea Complex based on Property Analysis (Lin Gao, Synfuels China Technology Co., Ltd. – China)							
10:20 – 10:50	Coffee	Coffee Break						
10:50 -	Session	n 10: Plasma-enhanced	Sessio	on 11: Tar reduction of	Sessio	1 12: Kinetics		
12:30	conver	rsion	product gas		Chair: Qi Chen			
	Chair:	Markus Reinmöller	Chair: Yang Yong		Room: Ballroom C			
	Room:	Ballroom B	Room: Ballroom A					
10:50 –	10-1	High-performance	11-1	MW plasma technology for	12-1	Enabling waste-to-X		
11:10		electrode materials for		gas upgrading (Anton		pathways: a		
		industrial plasma		Serov, TU Bergakademie		comprehensive analysis of		
		torches: overcoming the		Freiberg – Germany)		the entrained-flow		
		challenges of arc erosion				gasification kinetics of		
		(Felix Baitalow, TU				biogenic residues under		
		Bergakademie Freiberg –				industrial conditions		
		Germany)				(Weiss Naim, TU of Munich		
						– Germany)		

11:10 – 11:30	10-2	Fixed bed gasification with steam plasma integration (Ronny Schimpke, TU Bergakademie Freiberg – Germany)	11-2	Catalytic steam reforming of tar and methane at high pressure for H ₂ production (Chunguang Zhou, KTH Royal Institute of Technology – Sweden)	12-2	Illustrating the effect of physicochemical properties within vitrinite and inertinite on residual carbon formation in drop tube furnace (Yonghui Bai, Ningxia University – China)
11:30 – 11:50	10-3	The biogeniV alliance & plasma-assisted solutions for conversion of biogenic residues to green fuels & valuable materials (Stefan Klebingat, Leibniz Institute for Plasma Science and Technology – Germany)	11-3	Catalytic upgrading of coal pyrolysis volatiles over acid-base bifunctional carbon composite (Qian Wang, Taiyuan University of Technology – China)	12-3	Kinetic investigation of gasification of alternative carbon sources considering CO inhibition using TGA (Stefan Guhl, TU Bergakademie Freiberg – Germany)
11:50 – 12:10	10-4	Model-based investigation of fluid dynamics and temperature distribution in an atmospheric microwave discharge (Sophie Rodmacher, TU Bergakademie Freiberg – Germany)	11-4	Reduction of tars in fluidized bed gasification – parameter study in a labscale reactor and comparison to pilot tests (Fabiola Panitz, TU Darmstadt – Germany)	12-4	Interactions of the single and binary catalysts with ashless coal in CO ₂ atmosphere (Xingjun Wang, East China University of Science and Technology – China)
12:10 – 12:30	10-5	CFD Modeling of allothermal plasma- assisted entrained flow gasification (Sebastian Wilhelm, TU Munich – Germany	11-5	Catalyst upgrading of biomass pyrolysis volatile over zeolite/carbon catalysts prepared from coal based solid waste (Peng Lv, Ningxia University – China)	12-5	Detailed mass transfer study of the conversion process in a TGA: from single particle to packed bed using non-porous reactor graphite (Fengbo An, TU Bergakademie Freiberg – Germany)
12:30 – 13:30	Lunch					
13:30 – 15:10	Chair:	n 13: CH ₄ and HC cracking Ludwig Seidl Ballroom B	produ Chair:	on 14: Biomass pyrolysis and oct upgrading Robin Post van der Burg : Ballroom A	Session 15: Mineral matter II Chair: Michael Müller Room: Ballroom C	
13:30 – 13:50	13-1	Advanced power electronics driving plasma-based methane pyrolysis (Casten Winnewisser, TRUMPF Hüttinger – Germany)	14-1	Pyrolysis characteristics of biomass derived C1-C6 mixed alcohols to olefins (Liu Guangxuan, Xinjiang University – China)	15-1	Immobilization behavior and mechanism of heavy metals during thermal treatment of MSWI fly ash (Jin Bai, Chinese Academy of Sciences – China)
13:50 – 14:10	13-2	Turquoise H ₂ production from thermal methane cracking: an experimental and kinetic modelling study with focus on carbon product morphology (Matteo	14-2	Atom-doped Ni/ZrO ₂ as the catalyst for modulating the hydrodeoxygenation of methyl palmitate (Changhai Liang, Dalian University of Technology – China)	15-2	Application of ETV-ICP OES for fast multielement characterization and in situ measurement of element mobilization in simulated process gas atmospheres (Teres Pietschner, TU

		Pelucchi, Politecnico di Milano – Italy)				Bergakademie Freiberg – Germany)
14:10 -	13-3	Methane cracking in	14-3	CHAR:ME - Biochar and	15-3	Retention mechanism of
14:30		molten media for		biomass-derived waste		potassium in biomass by
		turquoise H ₂ : the role of		products as sustainable		kaolin addition in the
		the produced carbon		and safe domestic fuel		slagging and non-slagging
		(Benedetta de Caprariis,		(Riccardo Caraccio,		gasification condition
		Sapienza University –		Politecnico di Milano –		(Chong He, Taiyuan
		Italy)		Italy)		University of Technology –
						China)
14:30 -	13-4	Study on the properties	14-4	Effects of SiO ₂ /CaO on gas-	15-4	In-situ Study of the Effect
14:50		and carbon black		solid interactions during		of Potassium Release on
		generation of oily		the fast pyrolysis of		ash sintering behavior
		sludge, hydrocracking		cellulose pellets (Chang		during the Co-gasification
		tail oil and water		Zhang, East China		of coal and biomass
		mixture (Song Yang,		University of Science and		(Chaoyue Zhao, Ningxia
		Xinjiang University – China)		Technology – China)		University – China)
14:50 –	13-5	tbc	14-5	Effect of Van Soest method	15-5	In-situ release detection
15:10				on pyrolysis characteristics		and mechanism of alkali
				of BSG and mechanism of		metals during coal and
				tar generation and		biomass co-
				transformation (Pengbo		pyrolysis/gasification
				Liu, East China University of Science and Technology		(Jiaofei Wang, Ningxia University – China)
				- China)		Offiversity – China)
15:10 -	Coffee	Break		Ciliid		
15:40						
15:40 15:40 –		n 16: Concept studies		on 17: Conversion of plastics	Session	n 18: Mineral matter III
	Chair:	Alexander Rösch	Chair:	Markus Weber	Chair: .	Jin Bai
15:40 – 17:20	Chair: Room:	Alexander Rösch Ballroom B	Chair: Room	: Markus Weber : Ballroom A	Chair: . Room:	lin Bai Ballroom C
15:40 - 17:20	Chair:	Alexander Rösch Ballroom B A decentralized waste	Chair:	: Markus Weber : Ballroom A Application breakthrough	Chair: .	lin Bai Ballroom C Rheological properties of
15:40 – 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis	Chair: . Room:	lin Bai Ballroom C Rheological properties of molten slag in entrained
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of thermo-disintegration	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of thermo-disintegration waste to resource	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of thermo-disintegration waste to resource (TDWR) system	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia
15:40 - 17:20	Chair: Room:	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of thermo-disintegration waste to resource (TDWR) system (Grzegorz Lisak, Nanyang	Chair: Room	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery	Chair: . Room:	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia
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15:40 - 17:20 15:40 - 16:00	Chair: Room: 16-1	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of thermo-disintegration waste to resource (TDWR) system (Grzegorz Lisak, Nanyang Technological University – Singapore)	Room 17-1	: Markus Weber : Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery Works Ltd.— China)	Chair: Room: 18-1	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia University – China)
15:40 - 17:20 15:40 - 16:00 -	Chair: Room: 16-1	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of thermo-disintegration waste to resource (TDWR) system (Grzegorz Lisak, Nanyang Technological University – Singapore) Two-staged hydrothermal pretreatment of food waste	Room 17-1	Markus Weber Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery Works Ltd.— China) Chemical recycling of engineering plastics by pyrolysis (Philipp Rathsack,	Chair: Room: 18-1	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia University – China) Effect of residual carbon on the flow properties of iron-containing coal ash
15:40 - 17:20 15:40 - 16:00 -	Chair: Room: 16-1	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of thermo-disintegration waste to resource (TDWR) system (Grzegorz Lisak, Nanyang Technological University – Singapore) Two-staged hydrothermal pretreatment of food waste for anaerobic digestion:	Room 17-1	Markus Weber Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery Works Ltd.— China) Chemical recycling of engineering plastics by pyrolysis (Philipp Rathsack, Fraunhofer IKTS—	Chair: Room: 18-1	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia University – China) Effect of residual carbon on the flow properties of iron-containing coal ash and its modification
15:40 - 17:20 15:40 - 16:00 -	Chair: Room: 16-1	Alexander Rösch Ballroom B A decentralized waste management strategy for resource recovery and carbon sequestration through the deployment of thermo-disintegration waste to resource (TDWR) system (Grzegorz Lisak, Nanyang Technological University – Singapore) Two-staged hydrothermal pretreatment of food waste for anaerobic digestion: enhancement and	Room 17-1	Markus Weber Ballroom A Application breakthrough of waste plastic pyrolysis (Carlson Li, Sulzer Shanghai Engineering & Machinery Works Ltd.— China) Chemical recycling of engineering plastics by pyrolysis (Philipp Rathsack,	Chair: Room: 18-1	Ballroom C Rheological properties of molten slag in entrained flow co-gasification of coal and other feedstocks (Xudong Song, Ningxia University – China) Effect of residual carbon on the flow properties of iron-containing coal ash and its modification mechanisms (Wei Zhao,
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16:20 – 16:40	16-3	Syngas - the key to unlock the recarbonization of industry (Qi Chen, Chiron Energy Solutions – Netherlands)		Secondary gas-phase reactions of polyethylene pyrolysis: semi-detailed kinetics (Alessandro Pegurri, Politecnico di Milano – Italy)	18-3	Investigating the ash fusion characteristics and mineral transformations of biomass and coal ashes at high temperature (Jie Xu, Qingdao Agricultural University – China)
16:40 – 17:00	16-4	Biogas as a renewable carbon carrier for the chemical industry (Stefan Thiel, DBI- Virtuhcon GmbH, Germany – Germany)	17-4	Hydrothermal co- liquefaction of PET and invasive species for monomer production, biofuels and bio-asphalt applications (Luis Cutz, TU Delft – Netherlands)	18-4	Coal ash melting thermal kinetics (Wenju Shi, China University of Mining and Technology – China)
17:00 – 17:20	16-5	Future for hard coal in Poland under "Fit for 55 conditions" (Aleksander Sobolewski, Institute of Energy and Fuel Processing Technology - Poland)		Co-pyrolysis effect of PVC and waste tires: Migration characteristics of chlorine and sulfur during staged pyrolysis (Yue Sheng, East China University of Science and Technology – China)	18-5	Effect of Ca catalysts on mineral conversion and trace element migration in coal gasification process (Xingjun Wang, East China University of Science and Technology – China)
17:20 – 19:00		Reception, Ballroom Foy	/er			
Thursday,	Septem	ber 26, 2024				
09:00 -	Plenar	y Session 2: Transformat	ion strate	gies towards sustainability		
09:40	Chair:	Martin Gräbner				
		Ballroom B				
09:00 -	Keyno	te by National Institute of	Clean and	d Low-Carbon Energy – China		
09:20 09:20 –	Kovnot	te by Yulin City – China				
09:20 -	Reyno	te by fullificity – Cillia				
09:40 -	Coffee	Break				
10:10		2.50				
10:10 -	Sessio	n 19: Partial oxidation	Session 2	20: Valuable products from	Session	n 21: Chemical looping
11:50	Chair:	Qinghua Guo	coal		Chair:	Bernd Epple
	Room:	Ballroom B	Chair: Ka	ing Wanzhong	Room:	Ballroom C
				allroom A		
10:10 – 10:30	19-1	Project update SCOORE: synthesis gas from recycling of CO ₂ (Simon Wachter, BASF SE – Germany)	20-1	Coal hydrogasification for methane and aromatics technology development and industrialization (Liang Zeng, ENN Science & Technology Development Co., Ltd. – China)	21-1	The application of selected ferrites for biomass chemical looping combustion (Ewelina Ksepko, Wroclaw University of Science and Technology – Poland)
						reciliology – Poland)

		Chemicals (Bo Li, GTI Energy - United States)				
10:50 – 11:10	19-3	Options and pathways towards climate neutrality in chemical industry (Elena Marras, Air Liquide Innovation Campus Frankfurt – Germany)	20-3	Synthesis, characterization and catalytic performance of a novel and efficient iron-based catalyst NaFeS2 for direct coal liquefaction (Rui Zhang, Dalian University of Technology – China)	21-3	Syngas generation from microalgae through chemical looping gasification — primary results from an EU Marie-Curie project (Daofeng Mei, Instituto de Carboquímica — Spain)
11:10 – 11:30	19-4	Development of a Detailed CFD Model for High-Pressure Partial Oxidation using Large-Eddy- Simulation (Lukas Etzold, TU Bergakademie Freiberg – Germany)	20-4	Production of lump coke from stamped low-ranked coals and biogenic residues (Franz Fehse, TU Bergakademie Freiberg – Germany)	21-4	tbc
11:30 – 12:30	Lunch					
12:30 -	Session	n 22: CO ₂ as feedstock	Sessi	on 23: Coal pyrolysis	Session	n 24: Alternative H ₂
14:10		Cheng Jihong Ballroom B	Chair	: Haoquan Hu n: Ballroom A	I -	ction and integration Felix Baitalow
	Nooiii.	Daill Colli D	Room	ROOM. Balli Golff A		Ballroom C
12:30 – 12:50	22-1	Leading the way: Air Liquide's Lurgi methano technology is unlocking solutions to decarbonize carbon intensive industries (Alexander Rösch, Air Liquide Globa E&C Solutions — Germany) The robust three-		Experimental study on the effect of pyrolysis conditions on pyrolysis-gasification decoupling characteristics of Yili coal (Haigang Zhang, East China University of Science and Technology – China) Modeling Pore Structure	24-1	Hydrogen production from refuse derived fuel (RDF) in a novel borehole gasification process combined with advanced gas separation - project HydroMine (Krzysztof Kapusta, Central Mining Institute – Poland) Research on a low-carbon
13:10		dimensional macroporous iron-foam catalyst for direct conversion of CO₂ to olefins (Yi Liu, National Institute of Clean-and- Low-Carbon Energy − China)		Evolution during Coal Pyrolysis (He Yang, Dalian University of Technology – China)		hydrogen production technology - aqueous phase reforming (Baiyang Lin, Air Liquide Innovation Campus Shanghai – China)
13:10 – 13:30	22-3	First operation experience of a methanol demonstration plant with steel mill gas-es (Tim Schulzke, Fraunhofer UMSICHT – Germany)	23-3	Migrating and transformation behavior of sulfur and nitrogen during the rapid pyrolysis of coals (Keke Zhao, Taiyuan University of Technology – China)	24-3	Modeling and integration of the renewable hydrogen value chain using the example of the Fraunhofer Hydrogen Lab Görlitz (Maciej Satora, Fraunhofer IWU – Germany)
13:30 – 13:50	22-4	Cu ⁰ at the Cu/ZnO interface efficiently	23-4	Synthetical analysis of the influence of coalification	24-4	Simulation on hydrogen production from biomass

13:50 – 14:10	hydrogenation to methanol on Cu/ZnO modified by phosphorus doped carbon (Xinyu Wei, Ningxia University – China) 22-5 Carbon coated In ₂ O ₃ hollow tubes embedded with ultra-low content ZnO quantum dots as catalysts for CO ₂ hydrogenation to methanol (Weiguang Su,	23-5	degree on the tar formation mechanism (Weixiang Zhang, Xinjiang University – China) CO ₂ enhanced tar-rich coal pyrolysis to produce high quality tar and CO-rich gas (Duoer Yang, Beijing University of Technology – China)	24-5	gasification by Aspen Plus (Juntao Wei, Nanjing Forestry University – China) tbc			
	Ningxia University – China)							
14:10 -	Closing Ceremony (Martin Gräbne	er, TU B	ergakademie Freiberg – Gern	nany)	<u> </u>			
14:30	Room: Ballroom B							
	sion Program, Ballroom Foyer				Co. Lette /a			
Poster 01	Optimization of electrolysis: use of	•	-products waste heat and oxy	gen to ir	ncrease profitability (Laura			
Poster 02	Thiel, Fraunhofer IWU – Germany) Key-catalyst research on the Susta		On as feed for the production	of rone	wahle methanol (Yizoving			
Poster 02	Xu, National Institute of Clean-and		·	or rene	wable methanol (Alacyllig			
Poster 03				g pyroly:	sis of medium and low rank			
	Study on the migration and transformation of sulfur and mercury during pyrolysis of medium and low rank coal (Caixia Yue, Taiyuan University of Technology – China)							
Poster 04	Investigations on the interaction mechanisms of hydrogen donor and non-hydrogen donor on hydro-							
	genation behaviors of asphaltene (Yuanlin Zhang, East China University of Science and Technology – China)							
Poster 05	Modification of USY by leaching and Zr, Ni loading for upgrading pyrolysis volatiles from coal tar residue (Jie							
	Luo, Xinjiang University – China)							
Poster 06	Analysis of fragmentation mechan							
	droplet and mixed droplet (Yang H		·					
Poster 07	Distribution and migration pathy	-		_				
Poster 08	municipal sewage sludge for biofu Kinetics of redox reactions of Fe sp							
roster 08	Wroclaw University of Science and			ιαιιοπ ρ	Tocesses (Ewellia Ksepko,			
Poster 09	Research progress of NICE on bion		•	uang. Na	ational Institute of Clean-			
	and-Low Carbon Energy – China)		,	.				
Poster 10	Numerical study on the sedimenta	tion ch	aracteristics of single/binary p	article-s	supercritical water systems in			
	confined space (Huibo Wang, Xian	Jiaotor	ng University – China)					
Poster 11	Organic petrographical, mineralog		•					
-	in Western Anatolia (Ilker Sengule							
Poster 12	Conversion of syngas to high-melting wax (Ruonan He, National Institute of Clean-and-Low Carbon Energy – China)							
Poster 13	Chemical recycling of plastics thro – Spain)			_				
Poster 14	Preliminary characterization of car		·	pyrolysi	s in a tubular quartz reactor			
.	(Emmanuel Busillo, Sapienza University	•	•		D. O. C.			
Poster 15	Identification of coal characteristic							
Dooton 1C	experimental validations (Haiquan							
Poster 16	A Brief Introduction to Shaanxi Coa Shaanxi Coal and Chemical Techno		- ·		e co., Liu. (Shenjun Zhang,			
Poster 17	Migration law of fluorine element Technology – China)				niversity of Mining and			