

IIW SG212 Technical papers 1993-2007

Document number	Authors	Title	Category	Country
Doc. 212-824-93	S. Albrecht G. Forster A. Koch K. Landes G. Seeger W. Tiller	Gas tungsten arc diagnostics - a review Title	Review + Exp	Germany
Doc. 212-825-93	M. Ushio M. Tanaka F. Matsuda	Cathode phenomena in GTA welding	Exp	Japan
Doc. 212-826-93	D. Rehfeldt	Arc ignition behaviour in GMA welding	Exp	Germany
Doc. 212-827-93	E. Halmøy	Electrode melting in arc welding	Model	Norway
Doc. 212-828-93	I.M. Richardson	The influence of ambient pressure on arc welding processes	Review	UK
Doc. 212-829-93	S.A. David J.M. Vitek T. Zacharia T. DebRoy	Weld pool phenomena	Review	USA
Doc. 212-830-93	J.F. Lancaster	The history of Study Group 212	Review	UK
Doc. 212-832-93	J.J. Lowke P. Zhu R. Morrow J. Haidar A.J.D. Farmer G.N. Haddad	Onset of cathode and anode melting by electric arcs		Australia
Doc. 212-833-93	H. Maruo Y. Hirata	Bridging transfer phenomena of conductive pendant drop		Japan
Doc. 212-834-93	H. Maruo Y. Hirata	Natural frequency and oscillation mode in fully penetrated weld pool		Japan

Doc. 212-835-93	H. Maruo Y. Hirata K. Ozaki	Surface melting process with a thin electrode on a micrometer scale		Japan
Doc. 212-836-93	J.P. Zijp K. Hiraoka	Study on anode fall voltage and radiation in argon-helium mixed gas arcs		Japan
Doc. 212-837-93	A. Matsunawa	Modelling of heat and fluid flow in arc welding		Japan
Doc. 212-838-93	A. Matsunawa T. Ohnawa	Beam-plume interaction in laser materials processing		Japan
Doc. 212-839-93	J.W. Hooijmans G. den Ouden	Absorption of hydrogen in iron during arc melting		Netherlands
Doc. 212-841-93	S.W. Simpson P. Zhu M. Rados	Study of a consumable anode in an electric welding arc		Australia
Doc. 212-842-93	J. Tusek V. Kralj	Anode and cathode voltage fall in submerged arc welding		Slovenia
Doc. 212-843-93	V. Kralj J. Tusek	Current distribution in wires in welding with double-wire electrode		Slovenia
Doc. 212-844-93	R. Kejzar	Alloying processes in submerged arc surfacing with alloyed agglomerated fluxes		Slovenia
Doc. 212-848-93	Y.H. Xiao	Determination of surface tension of liquid metals and alloys		China
Doc. 212-851-94	N.V. Lolov	Modeling of heat transfer during welding		?
Doc. 212-854-94	A. Raja V.P. Raghupathy K.Sreenivasamurthy K.S. Raman	Effect of welding parameters on anodic and ohmic heating and anode fall voltage in FCAW and GMAW processes		India ?

Doc. 212-855-94	C.S. Wu L. Dorn	Computer simulation of fluid dynamics and heat transfer in full-penetrated TIG weld pools with surface depression		Germany
Doc. 212-857-94	G. Kraut S. Albrecht W. Tiller	Online data evaluation of TIG arc temperature distributions		Germany
Doc. 212-858-94	T. Ohji K. Yoneoka N. Yoshioka H. Yamadori	Measurement of electron density of arc plasma by IR radiation		Japan
Doc. 212-859-94	S. Yin Z. Geng	Effect of arc physics on developing GMAW		China
Doc. 212-860-94	J. Li H. Li Y. Huang	Study on the characteristics of underwater plasma arc		China
Doc. 212-861-94	P. Zhao E. Yuan Y. Yang G. Zhang	Glow discharge brazing		China
Doc. 212-862-94	L. Duan L. Fu S. Du W. Shi	Analysis on the deformation coupled with heat flow during friction welding by finite element method		China
Doc. 212-863-94	C. Jia X. Yin K. Xiao	The welding arc force		China
Doc. 212-864-94	Y. Song J. Li	Some features of the component distributions in welding arc		China
Doc. 212-865-94	Y. Hirata H. Maruo	Gas tungsten arc discharge phenomena by pulsed current supplied from experimental power source with pulse forming network circuit		Japan

Doc. 212-866-94	J. Li	General situation on research of welding physics in China		China
Doc. 212-868-94	C.L. Ooi J. Norrish	Waveform control for bipolar TIG welding process heating efficiency		UK
Doc. 212-869-94	R. Ducharme P. Kapadia J. Dowden I.M. Richardson	A mathematical model of the electric arc including shielding gas flow		UK
Doc. 212-870-94	S.W. Simpson P. Zhu M. Rados	Study of the metal transfer process in gas metal arc welding		Australia
Doc. 212-874-94	A.J.R. Aendenrooier G. den Ouden	Weld pool oscillation during pulsed GTA welding		Netherlands
Doc. 212-875-94	Y.H. Xiao G. den Ouden	Measurement of surface tension of liquid metals and alloys under arc welding conditions		Netherlands
Doc. 212-877-95	Y.Hirata E. Wakamatsu H. Maruo T. Ohji	Discharge phenomena of gas shielded metal arc with pulsed current		Japan
Doc. 212-878-95	Y. Song	Some features of welding arc radiation		China
Doc. 212-879-95	J. Tusek M. Suban	Voltage drops and melting rate in submerged arc welding		Slovenia
Doc. 212-880-95	A.V. Maloletkov G. den Ouden	Synergetic features of pulsed TIG welding		Netherlands
Doc. 212-881-95	T. Ohji T. Shiwaku Y. Hirata K. Hiraoka	Measurement of arc plasma by the IR plasma diagnostic method		Japan
Doc. 212-882-95	D. Rehfeldt T. Schmitz	Investigation and measurement of weld pool oscillation in GMAW		Germany

Doc. 212-884-95	P.J. Hewitt	Reducing fume emissions through process parameter selections		UK
Doc. 212-886-95	J.W. Hooijmans G. den Ouden	A model of hydrogen absorption during GTA welding		Netherlands
Doc. 212-889-96	G. Rihar	Model of mass flows in fusion welding		Slovenia
Doc. 212-890-96	J. Tusek	Influence of shielding medium on arc energy efficiency		Slovenia
Doc. 212-892-96	T. Ohji T. Masutani F. Miyasaka Y. Hirata	A mathematical model for circumferential GTA welding of pipe		Japan
Doc. 212-893-96	J.D. Kim A. Matsunawa	Plasma analysis in laser welding of aluminum alloys		Japan
Doc. 212-894-96	A. Matsunawa V. Semak	Keyhole “runaway” instability in high speed laser welding		Japan
Doc. 212-895-96	E. Halmøy	Simulation and instabilities in GMAW and SAW		Norway
Doc. 212-896-96	D. Rehfeldt R. Wittkopf	Investigations on electromagnetic compatibility in TIG welding		Germany
Doc. 212-897-96	Y. Hirata T. Osamura T. Ohji	Numerical model of GMA bridging transfer process		Japan
Doc. 212-898-96	M.J.M. Hermans G. den Ouden	Heat transfer in short circuiting GMAW		Netherlands
Doc. 212-900-96	G. Kraut K. Landes W. Tiller	Surface temperature measurement of a TIG arc cathode		Germany
Doc. 212-902-96	J. Haidar J.J. Lowke	Predictions of metal droplet formation in arc welding		Australia

Doc. 212-903-96	J.J. Lowke	Simple model for the transition current from globular to spray transfer in gas metal arc welding		Australia
Doc. 212-906-97	M. Tanaka M. Ushio	Observations of anode boundary layer in TIG arc plasma		Japan
Doc. 212-907-97	P. Orszagh Y.C. Kim K. Horikawa	Through-the-wire sensor for feedback torch height control		Slovakia
Doc. 212-909-97	T. Ohji K. Kondoh K. Ueda	A method for optimizing heat input in arc welding		Japan
Doc. 212-910-97	S.W. Simpson X. Li M. Rados	On-line analysis of GMA welding with neural networks		Australia
Doc. 212-911-97	J. Haidar J.J. Lowke	Prediction of globular and spray transfer modes for argon and carbon dioxide		Australia
Doc. 212-912-97	A.M. Kosecek P. Fodrek F. Kolenic	Thermovision diagnostics of plasma plume in laser welding		Slovakia
Doc. 212-914-97	D. Rehfeldt M.D. Rehfeldt	Measured and calculated electric power in arc welding		Germany
Doc. 212-916-97	R. Deam M. Bosworth Z. Chen I. French J. Haidar J.J. Lowke J. Norrish V. Tyagi A. Workman	Investigation of fume formation mechanisms in GMAW		Australia

Doc. 212-917-97	W. Tiller	Influence of the cathode shape on the measured radiant intensity		Germany
Doc. 212-925-98	W. Lucas J. Smith	Techniques for viewing the weld pool and controlling the TIG welding operation		UK
Doc. 212-926-98	K. Oshima K. Eguchi H. Sugi S. Yamane T. Kubota	Application of neural network to arc sensor		Japan
Doc. 212-927-98	W. Middel G. den Ouden	Additive-assisted position sensing during GTA welding		Netherlands
Doc. 212-928-98	S.W. Simpson Q. Lin S.E. Offerman M. Rados P. Xu	GMAW electrical measurements and their interpretation in terms of simulated welding behaviour		Australia
Doc. 212-930-98	U. Diltthey J. Gollnick	Through-the-arc sensing in GMA welding with high-speed rotating torch		Germany
Doc. 212-931-98	G. Huismann H. Hoffmeister	Sensing the MIG process by measuring the wire feed rate and the current		Germany
Doc. 212-932-98	J. Norrish F. de Boer K.D. Do	On-line identification of GMAW system performance using the arc as a sensor		Australia
Doc. 212-933-98	E. Halmøy	Simulation of rotational arc sensing in GMAW		Norway
Doc. 212-934-98	D. Rehfeldt T. Polte	Actual results of arc sensing in GMAW		Germany
Doc. 212-935-98	J.J. Lowke	Predictions of welding fume, arc sheath voltages and demixing in arcs		Australia

Doc. 212-936-98	Y. Hirata M.Onda T. Osamura T. Ohji	Breakup time of liquid metal bridge in short-circuiting transfer process of GMA welding		Japan
Doc. 212-937-98	J.-Y. Yu S.-J. Na J. Norrish	Influence of reflected arc light on vision sensor in automatic welding systems for height-varying weldments		Australia
Doc. 212-938-98	J. Tusek M. Suban	Influence of hydrogen in argon as a shielding gas in arc welding of high-alloy stainless steel		Slovenia
Doc. 212-939-98	Z. Zhu Y. Song	A limitation in the formula of heat input evaluation in arc welding		China
Doc. 212-944-99	D. Savu	Electromagnetic interaction in two-wires MIG/MAG welding		?
Doc. 212-946-99	M. Tanaka M. Ushio	Local thermodynamic equilibrium in argon gas-tungsten arcs		Japan
Doc. 212-947-99	C. Dong L. Wu	Arc light sensing of keyhole behaviour in plasma arc welding of stainless steel		China
Doc. 212-948-99	J. Tusek M. Surban	TIG welding in a mixture of argon, helium and hydrogen		Slovenia
Doc. 212-949-99	Y. Hirata M. Fukushima T. Sano K. Ozaki T. Ohji	Micro-arc discharge in argon gas atmosphere		Japan
Doc. 212-950-99	G. Huismann	Contact resistance in MIG welding		Germany
Doc. 212-951-99	G. Huismann	Effect of weaving on the heat transfer to the weld pool		Germany
Doc. 212-952-99	G. Huismann	Introduction of a new MIG process - advantages and possibilities		Germany

Doc. 212-954-99	D. Rehfeldt T. Polte	The detection of welding defects by fuzzy logic exemplified at the pulsed MIG welding of aluminium		Germany
Doc. 212-955-99	Y. Su Q. Guan	Spectrographic analysis of laser induced plasma in high power laser welding		China
Doc. 212-956-99	E. Halmøy	Simulation of GMAW dynamics with integral equation		Norway
Doc. 212-957-99	G. Forster G. Kraut K. Landes W. Tiller	Surface temperature of doped tungsten electrodes		Germany
Doc. 212-962-00	S. Puybouffat A. Chabenat C. Boudot D. Lacroix G. Jeandel S. Marya	Spectroscopic study of arc plasma in TIG welding of stainless steel 304 with TiO_2 as flux cover		France
Doc. 212-963-00	H. Terasaki M. Tanaka M. Ushio	Observations of arc plasma during welding in GTA process		Japan
Doc. 212-964-00	M. Tanaka T. Shimizu H. Terasaki M. Ushio F. Koshi-ishi C. Yang	Effects of activating flux on arc phenomena in TIG arc welding		Japan
Doc. 212-965-00	J.J. Lowke M. Tanaka M. Ushio	Modelling TIG arcs and the weld pool in a unified system		Australia/ Japan
Doc. 212-967-00	D. Rehfeldt T. Polte	Investigations on metal transfer in pulsed tandem MAG welding		Germany

Doc. 212-968-00	H. Nishikawa K. Yoshida T. Maruyama T. Ohji Y. Suita K. Masubuchi	Gas hollow tungsten arc characteristics under simulated space environment		Japan
Doc. 212-969-00	Y. Hirata M. Onda H. Nagaki T. Ohji	In-situ measurement of metal drop temperature in GMA short-circuiting welding		Japan
Doc. 212-970-00	T. Nakamura K. Hiraoka C. Shiga	Development of ultra-narrow gap GMA welding process		Japan
Doc. 212-971-00	B. Hu G. den Ouden	Laser-assisted arc ignition		Netherlands
Doc. 212-972-00	W. Middel R.R.G.M. Pieters G. den Ouden	Influence of additives on arc properties		Netherlands
Doc. 212-973-00	R. Fabbro K. Chouf	Keyhole description for deep penetration laser welding		France ?
Doc. 212-974-00	P. Kapadia J. Dowden	Some aspects of the behaviour of charged droplets in laser welding		UK
Doc. 212-975-00	J. Magee P. Okon J. Dowden	The relation between spot size and penetration depth in laser welding		UK
Doc. 212-976-00	S. Katayama N. Seto M. Mizutani A. Matsunawa	Interaction between plasma and laser beam and its effect on keyhole dynamics in high power CO ₂ laser welding		Japan
Doc. 212-977-00	A. Matsunawa	Possible motive forces of liquid motion in laser weld pool		Japan

Doc. 212-979-00	G. Huismann	Effect of the welding current on the material transfer in short circuit MIG welding		Germany
Doc. 212-980-00	S.W. Simpson Q. Lin M. Yan	Simulation and measurements of metal transfer in gas metal arc welding		Australia
Doc. 212-984-00	J. Tusek F. Markelj	Development of an algorithm for TIG welding of an austenitic stainless steel sheet		Slovenia
Doc. 212-985-00	M. Suban	The chaotic behavior of the material transfer in GMAW - preliminary report		Slovenia
Doc. 212-993-01	Y. Song D. Dai L. Zhang Y. Zhu H. Zhang	A study of the plasma force in plasma arc welding		China
Doc. 212-994-01	F. Ye Y. Song D. Li D. Rehfeldt	On-line quality monitoring in the robot arc welding process		China
Doc. 212-995-01	J.J. Lowke M. Tanaka M. Ushio	Predictions of weld depth in TIG arcs from unified arc-electrode calculations		Australia/ Japan
Doc. 212-996-01	J. Tusek	Spot plunged arc welding with covered electrode		Slovenia
Doc. 212-997-01	M. Suban J. Tusek	Statistical analysis of multiple-wire welding processes		Slovenia
Doc. 212-998-01	J. Tomc J. Tusek	Hydrodynamic stability of the weld pool in gas shielded arc welding		Slovenia
Doc. 212-999-01	A. Lesnjak J. Tusek	Analyses of processes in electrospark deposition		Slovenia

Doc. 212-1000-01	G. Huismann	Energy based synergic pulsed MIG control system		Germany
Doc. 212-1001-01	H. Fujii N. Sogabe M. Kamai K. Nogi	Convection in molten pool under microgravity		Japan
Doc. 212-1002-01	H. Fujii K. Nogi	Effect of gravity on bubble behavior in aluminum molten pool		Japan
Doc. 212-1003-01	H. Fujii K. Ueda M. Tanaka T. Matsumoto K. Nogi	Temperature coefficient of surface tension of molten pure iron and tin under plasma conditions		Japan
Doc. 212-1004-01	T. Nakamura K. Hiraoka	Wire melting behavior by unsteady heat conduction - numerical analysis in GMAW		Japan
Doc. 212-1005-01	S.M.C. van Bohemen M.J.M. Hermans G. den Ouden	Acoustic emission monitoring of martensite formation during welding		Netherlands
Doc. 212-1006-01	G. Rihar	Fusion welding as a flow process		Slovenia
Doc. 212-1007-01	E. Halmøy	Simulation of short circuiting GMAW - effect of wire thickness and arc voltage		Norway
Doc. 212-1008-01	D. Rehfeldt R. Wittkopf T. Polte	Assessing welding power sources by using test patterns and dynamic process models		Germany
Doc. 212-1012-02	V. Ponomarev H.C. Miranda V.A. Ferraresi A. Scotti	MAG-CO ₂ welding metal transfer optimisation by electronic power source parameters adjustments		Ukraine/ Italy

Doc. 212-1013-02	V. Ponomarev A.V. Costa A. Scotti	Evaluation of the voltage drop in MIG/MAG welding droplets and the consequences on the arc length self-control		Ukraina/ Italy
Doc. 212-1014-02	V. Ponomarev A. Scotti H.C. Miranda A.V. Costa	Influence of the power source dynamic characteristics on the metal transfer mixed mode		Ukraina/ Italy
Doc. 212-1016-02	J. Tusek F. Markelj J. Barbic B. Jez D. Arbi	A new approach to the description of the welding arc efficiency		Slovenia
Doc. 212-1017-02	J. Tusek V. Golob D. Arbi	Analysis of submerged-arc butt welding of reinforcing steel		Slovenia
Doc. 212-1018-02	M. Tanaka H. Terasaki M. Ushio J.J. Lowke	Non-steady state calculations of stationary TIG welding process from a unified arc-electrodes model		Japan
Doc. 212-1019-02	H. Terasaki M. Tanaka H. Fujii M. Ushio	Anode heat transfer in helium GTA welding		Japan
Doc. 212-1021-02	S.P. Lu H. Fujii H. Sugiyama M. Tanaka K. Nogi	Fusion zone dimensions with different active fluxes and quantities in GTAW		Japan
Doc. 212-1022-02	H. Fujii Y. Sumi M. Tanaka M. Kamai K. Nogi	Effects of gravity, welding current, arc length and shielding gas flow rate on arc pressure		Japan

Doc. 212-1023-02	Y. Hirata Y. Asai K. Takenaka S. Kunishige S. Ohgaki F. Miyasaka T. Ohji	3D-numerical model for penetration shape in GTA welding		Japan
Doc. 212-1024-02	A.B. Murphy J.J. Lowke	Reinterpretation of arc temperature measurements by laser scattering and the existence of arc thermodynamic equilibrium		Australia
Doc. 212-1025-02	B.Y. Yudodibroto M.J.M. Hermans Y. Hirata G. den Ouden	Weld pool oscillation during GTAW with filler wire addition		Netherlands
Doc. 212-1026-02	G. Huismann	Advantages in using the stick-out for increasing the burn-off rate in gas metal arc welding		Germany
Doc. 212-1028-02	V. Ponomarev A. Scotti	Mechanism of the free flight metal transfer mixed mode in MIG/MAG welding provoked by inadequate dynamic characteristics of the power source		Ukraina/ Italy
Doc. 212-1033-03	T. Nakamura, K.Hiraoka, M.Takahashi and T.Sasaki	GMA Welding Process with periodically controlling shielding gas composition -Development of Ultra-Narrow Gap GMA Welding Process -	Exp.	Japan
Doc.212-1034-03	Y.Hirata, N.Ando, T.Osamura, S.Ohgaki,T.Ohji	3D Numerical Model of Short-Circuiting Transfer Process in GMA Welding	Model	Japan

Doc.212-1036-03	B. Hu and G. den Ouden	Welding Efficiency of Laser-Assisted Arc Welding	Exp.	Netherlands
Doc.212-1037-03	B.Y.B. Yudodibroto M.J.M. Hermans and G. den Ouden	Oscillatory behaviour of the pendant droplet during pulsed current GMAW	Exp.	Netherlands
Doc.212-1038-03	H. Fujii, Y. Morikawa and K. Nogi	Effect of Four Driving Forces on Convection in Molten Pool	Model	Japan
Doc.212-1039-03	S. Lu, H. Fujii, M. Tanaka and K. Nogi	Effect of Ar-O₂ Mixed Shielding Gases on GTA Weld Shape	Exp.	Japan
Doc.212-1040-03	M. Tanaka, H. Terasaki, M. Ushio and J. Lowke	Numerical study of weld formations for stationary TIG arc in different gaseous atmospheres	Model	Japan
Doc.212-1041-03	H. Mizuno, H. Hasegawa and M. Tanaka	Visualization and Measurement of Molten Metal Behaviour in GTAW	Exp.	Japan
Doc.212-1042-03	Y.Hirata, S.Kunishige, M.J.M.Hermans, B.Y.B.Yudodibroto, T.Ohji, G.den Ouden, I.M.Richardson	3D numerical model of weld pool oscillation in GTAW	Model	Japan
Doc.212-1043-03	J. Tusek, F. Markelj	Influence of the welding parameters on the mode of weld-pool solidification of ferritic stainless steel	Exp.	Slovenia
Doc.212-1044-03	D. Klobcar, J. Tusek, B. Taljat	Modeling of GTA weld surfacing applied to hot-work tooling	Model	Slovenia
Doc.212-1046-03	G. Huismann	Arc voltage measurements of the MIG process	Exp.	Germany
Doc.212-1047-03	K. Yushchenko, D. Kovalenko, I. Kovalenko	Investigation of peculiarities of A-TIG welding of stainless steels	Exp.	Ukraine

Doc.212-1053-04	JJ Lowke, M Tanaka, M Ushio	Insulation effects of a flux layer in producing greater weld depth	Model	Australia/ Japan
Doc.212-1054-04	S Lu, H Fujii, M Tanaka, K Nogi	Effects of welding parameters on the weld shape in Ar-O₂ and Ar-CO₂ shielded GTA welding	Exp.	Japan
Doc.212-1055-04	C Dong, S Katayama	Basic understanding of A-TIG welding process	Exp.	Japan
Doc.212-1056-04	S Asai, R Tsuboi, K Kamimura, T Yasuda, H Takebayashi	Application of A-TIG process to repair welding in power plants	Exp.	Japan
Doc.212-1057-04	S Marya	Enhancing GTAW performance through flux coatings. Theoretical background and industrial applications	Exp.	France
Doc.212-1058-04	K Kamo, M Toyada, S Ito	Application of GTA welding with activated flux to nuclear power plant	Exp.	Japan
Doc.212-1059-04	Y Ogawa	Effect of active flux on anode reaction	Exp.	Japan
Doc.212-1060-04	F Miyasaka, Y Yamane, T Ohji	Development of circumferential GTA welding process model for aluminium alloy structures	Exp.	Japan
Doc.212-1061-04	T Okagaito, F Miyasaka, T Ohji,	UV radiation thermometry of TIG weld pool	Exp.	Japan
Doc.212-1062-04	S Shobako, M Ohta, T Ohji	Characteristics of hollow cathode arc as a heat source	Exp.	Japan
Doc.212-1063-04	Y P Lei, Y W Shi, H Murakawa	Mathematical modelling of the interactions between coupled welding arc and pool for gas tungsten arc welding	Model	China/ Japan

Doc.212-1064-04	M Tanaka, M Ushio, J Lowke	“LTE-diffusion approximation” for arc welding calculations	Model	Japan/ Australia
Doc.212-1065-04	G Huismann	Starting of the MIG process	Exp.	Germany
Doc.212-1066-04	G Rückert, B Huneau, S Marya	Optimization of flux coatings on ATIG welding performance; Case study of silica on stainless steels	Exp.	France
Doc.212-1067-04	M Tanaka	In-situ measurements of electrode workfunctions in TIG arcs during operation	Exp.+ Model	Japan
Doc.212-1068-04	T Nakamura, K Hiraoka	GMA Welding Process Using Wire feed Rate which Synchronized with Current Waveform - Development of Ultra-Narrow Gap GMA Welding Process (Report 4)	Exp.	Japan
Doc.212-1070-04	BYB Yudodidbroto M J M Hermans, Y Hirata G den Ouden I M Richardson	Monitoring pendant droplet oscillation during pulsed current GMAW	Exp.	Netherlands/ Japan
Doc.212-1073-05	J Lowke, M Tanaka, M Ushio	Predictions of effects of electron attachment to form negative ions on TIG profiles of current density and temperature in the arc and weld-pool	Model	Australia/ Japan
Doc.212-1074-05	M Farajian-Sohi N Järvstråt	Formation and detection of weld toe imperfections in tandem gas metal arc welding	Exp.	Sweden
Doc.212-1075-05	M Tanaka, T Mita, S Tashiro, M Ushio, T Murphy, J Lowke	Characteristics of a CO₂ gas shielded plasma arc	Exp.	Japan

Doc.212-1076-05	Y Hirata, K Ohnishi, T Ohji	Numerical model of arc plasma with metal transfer in argon gas shielded metal arc welding	Model	Japan
Doc.212-1077-05	Y Hirata, K Tsujimura, B Y B Yudodibroto, M J M Hermans, T Ohji, G. den Ouden, I M Richardson	Modelling of pendant drop oscillation	Model	Netherlands/ Japan
Doc.212-1078-05	P Girard	French overview of the process to part coupling activity in welding: Numerical benchmark for weld pool simulation	Model	France
Doc.212-1079-05	S Shobaki, T Ohji	Characteristics of hollow cathode arc as a welding source – measurement of electron density by IR method of plasma diagnostics	Exp.	Japan
Doc.212-1080-05	T Nakamura, K Hiraoka	Development of stable MIG welding in pure Ar	Exp.	Japan
Doc.212-1081-05	T Ueyama, T Ohnawa, M Tanaka, K Nakata	Effects of torch configuration and welding current on weld metal bead formation in high speed tandem pulsed GMA welding of steel sheets.	Exp.	Japan
Doc.212-1082-05	G Huismann	Dynamic behaviour of the stick out during starting of the MIG process	Exp. + Model	Germany

Doc.212-1085-05	B E Paton, K A Yushchenko, D V Kovalenko, I V Krivtsun, V F Demchenko, I V Kovalenko	Formation of quasi keyhole is a source of deep penetration in A-TIG welding of stainless steel	Exp.	Ukraine
Doc.212-1086-05	K A Yushchenko, V V Derlomenko	New approach to evaluation of weldability of materials	Review	Ukraine
Doc.212-1088-05	K A Yushchenko, D V Kovalenko, I V Kovalenko	Comparative analysis of A-TIG and TIG welding	Review	Ukraine
Doc.212-1090-06	S Izutani H Shimizu K Suzuki F Koshiishi Y Hirata	Observational Classification of Droplet Transfer in Gas Metal Arc Welding	Exp	Japan
Doc.212-1091-06	M Tanaka S Tashiro JJ Lowke	Predictions of current attachment at thermionic cathode for gas tungsten arc at atmospheric pressure	Model	Japan/ Australia
Doc.212-1092-06	F Miyasaki N Mukai T Ohji	Development of a GMA multi-pass welding process model – Study of high-speed calculation algorithm -	Exp	Japan
Doc.212-1093-06	T Kataoka R Rinsei M Ono K Yasuda	Development of ultra-low spatter CO₂ gas shielded arc welding process	Exp	Japan
Doc.212-1094-06	JJ Lowke M Tanaka	Boundary conditions for electron density at the anode for calculations of heat flux and current density of TIG arcs	Model	Australia/ Japan
Doc.212-1095-06	T Nakamura K Hiraoka S Zenitani	MIG arc behavior in addition to small amount of oxygen into shielding gas	Exp	Japan

Doc.212-1098-06	T Matsumoto H Fujii K Kitamuro M Kamai K Nogi	Development of Supersonic Wave TIG welding method	Exp	Japan
Doc.212-1101-07	S Noguchi E Ohmura Y Hirata	Modeling of Laser Drilling Process Considering Multiple Laser Reflections and Evaporation	Model	Japan
Doc.212-1102-07	T Ueyami T Era F Nishisaka H Shiosaki T Uezono H Tong	Numerical Modeling of TIG Arc with Molten Cathode	Model	Japan
Doc.212-1103-07	K Ono S Tashiro M Tanaka K Nakata	In-Situ Measurement of Metal Droplet Temperature in Gas Metal Arc Welding by Two-Color Pyrometry	Exp	Japan
Doc.212-1104-07	M Miyasaki A Yamamoto D Yamabe S Shobako T Ohji	Characteristics of Hollow Cathode Arc as a Welding Heat Source – Measurement of Pressure in HCA Torch	Exp	Japan
Doc.212-1105-07	T Nakamura K Hiraoka T Ito T Saito M Yoshida	Influence of hybrid solid wire structure on droplet transfer – Arc behavior of hybrid solid wire	Exp	Japan
Doc.212-1106-07	Y Kaneko Y Maekawa S Yamane K Oshima	Numerical Simulation of MIG Weld Pool in Switch Back Welding	Model	Japan

Doc.212-1107-07	M Tanaka K Yamamoto S Tashiro K Nakata M Ushio K Yamazaki E Yamamoto K Suzuki	Metal vapor behavior in thermal plasma of gas tungsten arcs during welding	Model + exp	Japan
Doc.212-1108-07	JJ Lowke M Tanaka	The Physics of Cathodes in MIG Arcs	Review + model	Australia/ Japan
Doc.212-1109-07	M Brochard S Gounaud M Médale	Numerical simulation of TIG welding arc using LSFEM method for the magnetic field computation	Model	France
Doc.212-1110-07	K Yamamoto M Tanaka S Tashiro K Nakata M Ushio K Yamazaki E Yamamoto K Suzuki	Numerical modeling of TIG Arc with molten Cathode	Model	Japan

Joint workshop of SG212 and Comm.XII on “Metal Transfer” coordinated by Prof. J.Norrish was held on Wednesday 30 August, 2006 and the following documents were presented and discussed:

aga 3a 22
58/08

- f) G.Dean, D.Cuiuri, J.Norrish, C.Cook

An Alternative Current Control Approach For Dip Transfer GMAW

Doc. XII-1891-06

- g) T.Kataoka, R.Ikeda, M.Ono, K.Yasuda

Development of ultra-low spatter CO₂ gas shielded arc welding process

Doc.212-1093-06 (on IIW web)

- h) I.Richardson, M.Hermans, J.Norrish

The Mechanism and Significance of Drop Spray Transfer in GMAW

Doc. XII-1893-06

- i) T.Era, A.Ide, T.Uezono, H.Yamamoto ,T.Ueyama

Spatter Reduction of Steel Sheets Welding Using Controlled Bridge Transfer (CBT) GMA Process

Doc.XII-1900-06

- j) S.Izutani, H.Shimizu, K.Suzuki, F.Koshiishi, Y.Hirata

Observation and Classification of Droplet Transfer in Gas Metal Arc Welding

Doc.212-1090-06 (on IIW web)

- k) D.Iordachescu, W.Lucas, V.Ponomarev

Update on Classification of Metal Transfer

Doc XII-1888-06

PROGRAMME

Commission XII and SG212 Joint Workshop

Osaka , Japan

Wednesday, 14 July, 2004

"UNDERSTANDING THE MECHANISM OF THE A-TIG PROCESS AND ITS APPLICATION IN INDUSTRY"

- 2.00 Welcome and Introduction (Professor Y Hirata)
- 2.10 Doc.XII-1802-04/212-1055-04:
C.Dong and S.Katayama
Basic Understanding of the A-TIG Welding Process
- 2.35 Doc.XII-1797-04/212-1059-04:
Y.Ogawa
Effect of Active Flux on Anode Reaction
- 3.00 Doc.XII-1800-04/212-1053-04:
J.J.Lowke, M.Tanaka and M.Ushio
Insulation Effects of Flux Layer in Producing Greater Weld Depth
- 3.25 Doc.XII-1801-04/212-1054-04:
S.Lu, H.Fujii, M.Tanaka and K.Nogi
Effects of Welding Parameters on the Weld Shape in Ar-O₂ and Ar-CO₂ Shielded GTA Welding
- 3.50 Break
- 4.20 Doc.XII-1804-04/212-1057-04:
S. Marya

Enhancing GTAW Performance Through Flux Coatings
-Theoretical Background and Industrial Applications

- 4.45** **Doc.XII-1809-04/212-1066-04:**
G.Ruckert, B.Huneau and S.Marya
Optimization of flux Coatings on A-TIG Welding Performance
-Case study of silica on stainless steels
- 5.10** **Doc.XII-1796-04/212-1058-04:**
K.Kamo, M.Toyoda and S.Ito
Application on GTA Welding with Activating Flux to Nuclear Power Plants
- 5.35** **Doc.XII-1803-04/212-1056-04:**
S.Asai, R.Tsuboi,K.Kamimura, T.Yasuda and H.Takebayashi
Application of A-TIG Process to Repair Welding in Power Plants
- 6.00** **Close**

Programme

Commission IV, XII and SG 212 Intermediate Meeting

**Migatronic, Fjerslev, Denmark
22-24 April, 2008**

Tuesday, 22 April

12.00am Welcome and Lunch

Technical Session 1

**1 ‘State of the Art’ and Recent Advances in MIG/MAG Welding Processes and Equipment
Migatronic**

**2 Process Performance and Efficiency of MIG/MAG Process Variants
(STT, CMT, Fastroot, Powermode and Rapid Arc)
David Yapp and Nuno Pepe, Cranfield University**

**3 ‘State of the Art’ and Recent Advances in TIG and Plasma Welding Processes and Equipment
Jean-Marie Fortain, Air Liquide**

**4 Recent Developments in High Deposition Rate Processes and Equipment
Bill Lucas, TWI**

**5 Discussion on the ‘State of the Art’ documents and future work on reviewing advances in arc welding
processes and equipment**

Evening: Buffet Reception

Wednesday, 23 April

Industrial Tours

Tour of Migatronik

Visit to Grundfoss

Evening: Formal Dinner

Thursday, 24 April

Technical Session 2

1 Recent Developments in Hybrid Laser/Arc Welding

David Yapp, Cranfield University

2 Braze-Welding of Steel to Aluminium

Ozlem Esma Gungor, Arcelor Mittal Research Industry

3 Penetration Shape of Butt Welding with V Groove by GMAW

Yoshinori Hirata, H Shinohara and T Hirano, Osaka University

4 Prediction of Hot Crack of T Joints in Full Penetration Welding Process

Hidekazu Murakawa, Osaka University

5 Discussion on Commission XII meeting at the IIW General Assembly, Graz, Austria, 7-9 July 2008

12.00 am Lunch and Dispersal





