

## Peer reviewed publications

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### **Mechanical and optical properties of $\text{MgAl}_2\text{O}_4$ ceramics and ballistic efficiency of spinel based armour**

C. GAJDOWSKI, R. D'ELIA, N. FADERL, J. BOEHMLER, Y. LORGOUILLOUX\*, S. LEMONNIER, A. LERICHE\*

*Ceramics International* 48 (2022) 18199–18211; © 2022 Elsevier Ltd and Techna Group S.r.l.;  
[doi.org/10.1016/j.ceramint.2022.03.079](https://doi.org/10.1016/j.ceramint.2022.03.079)

R-01/13/13/000/0/00-00/PR-117/2022

### **Estimating ignition delay times of nitroglycerin: A chemical kinetic modeling study**

J. GLORIAN, J. EHRHARDT, B. BASCHUNG

*Combustion Science and Technology, Taylor & Francis*; [doi.org/10.1080/00102202.2022.2081806](https://doi.org/10.1080/00102202.2022.2081806)

R-01/19/01/000/0/00-00/PR-155/2022

## Publications

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### **Gun propellant low temperature decomposition: A numerical and experimental study**

J. EHRHARDT, J. GLORIAN, B. BASCHUNG

*51st International Annual Conference of the Fraunhofer Institute for Chemical Technology (ICT), Karlsruhe, DE, June 28-July 1, 2022*

R-01/21/01/000/0/00-00/PU-108/2022

### **Towards understanding of the combustion chemistry of propellant functional groups via kinetic modeling of amyl-nitrite**

H. MINWEGEN, J. GLORIAN, M. PREUSSLER\*, K.A. HEUFER\*, B. BASCHUNG

*51st International ICT-Conference, Karlsruhe, DE, June 28-July 1, 2022*

R-01/19/01/000/0/00-00/PU-344/2022

### **Towards a theoretical description of energetic materials sensitivities**

R. CLAVEAU, J. GLORIAN, D. MATHIEU\*

*51st International ICT-Conference, Karlsruhe, DE, June 28-July 1, 2022*

R-01/19/01/000/0/00-00/PU-345/2022

### **Chapter 11: Role of electronic excited states in the initiation of explosives**

D. MATHIEU\*, R. CLAVEAU, J. GLORIAN

*Theoretical and Computational Chemistry, Volume 22*; © 2022 Elsevier B.V. All rights reserved;  
[doi.org/10.1016/B978-0-12-822971-2.00018-8](https://doi.org/10.1016/B978-0-12-822971-2.00018-8)

R-01/19/01/000/0/00-00/PU-346/2022

### **Chapter 7: Thermal initiation and propagation of the decomposition process**

R. CLAVEAU, J. GLORIAN, D. MATHIEU\*

*Theoretical and Computational Chemistry, Volume 22*; © 2022 Elsevier B.V. All rights reserved;  
[doi.org/10.1016/B978-0-12-822971-2.00008-5](https://doi.org/10.1016/B978-0-12-822971-2.00008-5)

R-01/19/01/000/0/00-00/PU-347/2022

## **Chapter 16: Implementation of predictive models: Practical aspects**

**D. MATHIEU\*, R. CLAVEAU\*, J. GLORIAN**

*Theoretical and Computational Chemistry, Volume 22; © 2022 Elsevier B.V. All rights reserved;  
doi.org/10.1016/B978-0-12-822971-2.00016-4*

R-01/19/01/000/0/00-00/PU-348/2022

## **Additive manufacturing of gun propellants at ISL**

M. CHIROLI, F. CISZEK, B. BASCHUNG

*51st International ICT-Conference, Karlsruhe, DE, June 28-July 1, 2022*

*AGENCE INNOVATION DEFENSE - Grant agreement ISL No. 2021.65.0008*

R-01/17/01/054/2/00-00/PU-350/2022

# ► Flight techniques for projectiles

## Peer reviewed publications

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### **Attitude estimation for artillery shells using magnetometers and frequency detection of accelerometers**

A. FIOT, S. CHANGEY, N. PETIT\*

*Control Engineering Practice* 122 (2022)105080; © 2022 Elsevier Ltd. All rights reserved;  
[doi.org/10.1016/j.conengprac.2022.105080](https://doi.org/10.1016/j.conengprac.2022.105080)

R-02/21/02/000/0/00-00/PR-18/2022

### **The potential of LEO satellite-based opportunistic navigation for high dynamic applications**

N. JARDAK, Q. JAULT

*Sensors* 2022, 22, 2541; [doi.org/10.3390/s22072541](https://doi.org/10.3390/s22072541)

R-02/21/02/058/2/00-00/PR-101/2022

### **A gyroless algorithm with multi-hypothesis initialization for projectile navigation**

N. JARDAK, R. ADAM, S. CHANGEY

*Sensors* 2021, 21, 7487; [doi.org/10.3390/s21227487](https://doi.org/10.3390/s21227487)

R-02/21/02/058/2/00-00/PR-102/2022

### **Three-dimensional guidance law mimicking realistic ballistic trajectories**

R. FONOD, M. PROFF, S. THEODOULIS

*Journal of Guidance, Control, and Dynamics. Engineering Notes*; [doi.org/10.2514/1.G006741](https://doi.org/10.2514/1.G006741)

R-02/21/04/000/0/00-00/PR-131/2022

### **Concurrent airframe-controller optimization of a guided projectile fitted with lifting surfaces**

V. RISS, E. ROUSSEL, E. LAROCHE\*

*2022 Science & Technology (SciTech) Forum (AIAA), San Diego/CA, US & Vitual, January 03-07, 2022*;  
[doi.org/10.2514/6.2022-0620](https://doi.org/10.2514/6.2022-0620); © 2022 AIAA, Inc. All rights reserved

R-02/21/03/000/0/00-00/PR-205/2022

### **Automatic weighting filter tuning for robust flight control law design**

C.A. PÉREZ, S. THEODOULIS, F. SÈVE\*, L. GOERIG\*

*18th IFAC Workshop on Control Applications of Optimization, Gif-sur-Yvett, FR, July 18-22, 2022*;  
[DOI: 10.1016/j.ifacol.2022.09.057](https://doi.org/10.1016/j.ifacol.2022.09.057); ELSEVIER, *IFAC PapersOnLine* 55-16 (2022) 400–405; 2405-8963

R-02/21/05/000/0/00-00/PR-255/2022

### **Projectile trajectory estimation: An LSTM approach**

A. ROUX, S. CHANGEY, J. WEBER\*, J.-P. LAUFFENBURGER\*

*Conference on Artificial Intelligence for Defense (CAID), Rennes, FR, November 16-17, 2022*

R-02/21/02/000/0/00-00/PR-338/2022

**CNN-based invariant extended Kalman filter for projectile trajectory estimation using IMU only**

A. ROUX, S. CHANGEY, J. WEBER\*, J.-P. LAUFFENBURGER\*

*IEEE, 5th International Conference on Control Automation and Diagnosis (ICCAD'21), Grenoble, FR, 03-05 November 2021*

R-02/21/02/000/0/00-00/PU-26/2022

**Projectile trajectory estimation: Performance analysis of an extended Kalman filter and an imperfect invariant extended Kalman filter**

A. ROUX, S. CHANGEY, J. WEBER\*, J.-P. LAUFFENBURGER\*

*IEEE, 9th International Conference on Systems and Control, Caen, FR, November 24-26, 2021*

R-02/21/02/000/0/00-00/PU-27/2022

**Circularly-polarized GNSS metasurface antenna with two feed points in a sub-wavelength metallic cavity**

L. GARCIA-GAMEZ, L. BERNARD, R. SAULEAU\*, S. COLLARDEY\*, K. MAHDJOUBI\*, P. POULIGUEN\*, P. POTIER\*

*16th European Conference on Antennas and Propagation, EUCAP 2022, Madrid, SP, March 27-April 01, 2022; doi: 10.23919/EuCAP53622.2022.9769030*

R-02/20/02/000/0/00-00/PU-87/2022

**Small conformal cavity-backed magnetoelectric antenna for GNSS bands**

A. CAUSSE, L. BERNARD, S. COLLARDEY\*, A. SHARAIHA\*

*European Conference on Antennas and Propagation, EUCAP 2022, Madrid, SP, March 27-April 01, 2022*

*doi: 10.23919/EuCAP53622.2022.9769667*

R-02/20/02/000/0/00-00/PU-88/2022

**Terminal phase nonlinear attitude autopilot design for dual-spin guided projectiles**

S. PINEAU, S. THEODOULIS, M. ZASADZINSKI\*, M. BOUTAYEB\*

*CEAS EuroGNC 2022 "Conference on Guidance, Navigation and Control", Technische Universität Berlin, DE, 03-05 May, 2022*

R-02/19/01/000/0/00-00/PU-103/2022

**Experimental investigation of thermal ablation by melting in a hypersonic shock tunnel**

F. DENIS, R. HRUSCHKA, M. BASTIDE, B. SAUERWEIN, Y. HOARAU\*, R. MOSE\*

*Journal of Spacecraft and Rockets, American Institute of Aeronautics and Astronautics; doi.org/10.2514/1.A35271*

R-02/19/04/000/0/00-00/PU-109/2022

**Magnuseffekte rotierender Flugkörper bei großen Anstellwinkeln im kritischen Reynoldszahlbereich**

B. DUTSCHKE, C. REY, S. WEIDNER, C. MUNDT

*Fachtagung "Experimentelle Strömungsmechanik", Ilmenau, DE, 6.-8. September 2022; © 2022 GALA e.V.*

R-02/20/01/000/0/00-00/PU-134/2022

**Antenne Yagi-Uda magneto-électrique**

L. BERNARD, A. CAUSSE, J. VIVET, S. COLLARDEY\*, A. SHARAIHA\*

*XXIIèmes Journées Nationales Microondes, Limoges, FR, 8-10 juin 2022*

R-02/20/02/000/0/00-00/PU-140/2022

## **Antenne GNSS métasurface à polarisation circulaire à deux accès en cavité**

L. GARCÍA-GÁMEZ, L. BERNARD, R. SAULEAU\*, S. COLLARDEY\*, K. MAHDJOUBI\*, P. POULIGUEN\*, P. POTIER\*

*XXIIèmes Journées Nationales Microondes, Limoges, FR, 8-10 juin 2022*

R-02/20/02/000/0/00-00/PU-141/2022

## **Miniaturisation d'un dipôle magnétoélectrique en cavité**

A. CAUSSE, L. BERNARD, S. COLLARDEY\*, A. SHARAIHA\*

*XXIIèmes Journées Nationales Microondes, Limoges, FR, 8-10 juin 2022*

R-02/20/02/000/0/00-00/PU-142/2022

## **Task allocation and path planning for collaborative swarm guidance in support of artillery mission**

N. PINON, G. STRUB, S. CHANGEY, M. BASSET\*

*2022 International Conference on Unmanned Aircraft Systems (ICUAS), Dubrovnik, HR, June 21-24, 2022; doi: 10.1109/ICUAS54217.2022.9836038; ©2022 IEEE*

R-02/21/04/000/0/00-00/PU-197/2022

## **Estimation of the velocity of a projectile using radial accelerometers. Validation on 155mm free flight test**

A. FIOT, S. CHANGEY, R. ADAM, N. PETIT\*

*32nd International Symposium on Ballistics (IBS), Reno/NV, US, May 08-13, 2022; doi: 10.12783/ballistics22/36124; © IBS 2022*

R-02/21/02/000/0/00-00/PU-199/2022

## **Démonstration de navigation pour projectile**

S. CHANGEY, R. ADAM, E. PECHEUR, N. JARDAK

*Sixièmes Journées des Démonstrateurs en Automatique, Angers, FR, 21-22 juin 2022*

R-02/21/02/000/0/00-00/PU-200/2022

## **La plateforme KISS (Kamera und IMU Synchronisiertes Systems)**

G.CHEVRIN, S. SCHERTZER, E. PECHEUR, S. CHANGEY, D. MONNIN, J.-P. LAUFENBURGER\*

*Sixièmes Journées des Démonstrateurs en Automatique, Angers, FR, 21-22 juin 2022*

R-02/21/02/000/0/00-00/PU-201/2022

## **ACHILES2 : une maquette de projectile asservi en soufflerie pour la modélisation et la commande**

V. RISS, E. ROUSSEL, E. LAROCHE\*

*Sixièmes Journées des Démonstrateurs en Automatique, Angers, FR, 21-22 juin 2022*

R-02/21/03/000/0/00-00/PU-203/2022

## **Autopilot design for dual-spin projectiles using incremental nonlinear dynamic inversion**

S. PINEAU, S. THEODOULIS, M. ZASADZINSKI\*, M. BOUTAYEB\*

*30th Mediterranean Conference on Control and Automation (MED), Athens, GR, June 28-July 1, 2022; ©2022 IEEE; 10.1109/MED54222.2022.9837217*

R-02/21/05/000/0/00-00/PU-213/2022

## **Towards hypersonic flight experiments using a powder launcher**

M. ALBISSER, A. ZEINER, R. WÖLBING, B. MARTINEZ, V. LIEBY

*ARA 2022, 71st Aeroballistic Range Association Meeting, Königswinter, DE, July 31-August 5, 2022*

R-02/17/02/000/0/00-00/PU-221/2022

## **Caractérisation par PIV du champ de vitesses au culot d'un modèle de sonde spatiale en vol libre transsonique**

C. REY, C. DECROCO, F. SAADA, H. KAUFFMANN, V. LIEBY

*Congrès Francophone de Techniques Laser, CFTL 2022, Leuven, BE, 12-16 septembre 2022*

R-02/16/02/000/0/00-00/PU-248/2022

## **Estimation de la trajectoire d'un projectile ajustée dynamiquement par un réseau de neurones**

A. ROUX, S. CHANGEY, J. WEBER\*, J.-P. LAUFFENBURGER\*

*GRETSI'22 - XXVIIIème Colloque Francophone de Traitement du Signal et des Images, Nancy, FR, 05-09 Septembre 2022*

R-02/21/02/000/0/00-00/PU-259/2022

## **AeroBALCO, a proving ground oriented tool for aeroballistics studies**

C. DECROCO, P. WEY, J.-C. MEDURI, B. MARTINEZ, T. MUIKKU\*

*32nd International Symposium on Ballistics, Reno/NV, US, May 08-13, 2022*

R-02/13/01/060/2/00-00/PU-295/2022

## **Application of an event-sensor to situational awareness**

M. BAMOND, N. HUEBER, G. STRUB, S. CHANGEY, J. WEBER\*

*Proc. SPIE 12272, Electro-Optical Remote Sensing XVI; 122720G (2022); © 2022 SPIE; doi.org/10.1117/12.2638545; Event: SPIE Security + Defence, Berlin, DE, September 05-08, 2022*

R-02/21/04/000/0/00-00/PU-298/2022

## **2D direction-of-arrival estimation of gun-fired projectile using commercial software-defined-radio**

C. CAMPO, E. BIEBER, L. BERNARD

*IEEE International Symposium on Phased Array Systems & Technology (PAST), Boston/MA, US, October 11-14, 2022; © 2022 IEEE*

R-02/20/02/000/0/00-00/PU-310/2022

## **Visual homing guidance for projectiles using event-cameras**

M. BAMOND, N. HUEBER, G. STRUB, S. CHANGEY, J. WEBER

*Proceedings Vol. 12274, Emerging Imaging and Sensing Technologies for Security and Defence VII; 122740G (2022); © 2022 SPIE; doi.org/10.1117/12.2638477; Event: ESI22D SPIE Security + Defence, Berlin, DE, September 05-08, 2022*

R-02/21/04/000/0/00-00/PU-313/2022

## **Flight dynamics modeling and simulator design for a new class of long-range guided projectiles**

G.M. VINCO, S. THEODOULIS, O. SENAME\*

*CEAS EuroGNC 2022, Conference on Guidance, Navigation and Control, Berlin, DE, May 03-05, 2022; CEAS-GNC-2022-034*

R-02/21/05/000/0/00-00/PU-340/2022

## **Quasi-LPV modeling of guided projectile pitch dynamics through state transformation technique**

G.M. VINCO, S. THEODOULIS, O. SENAME\*, G. STRUB

*Joint 8th IFAC Symposium on System Structure and Control, 17th IFAC Workshop on Time Delay Systems, 5th IFAC Workshop on Linear Parameter Varying Systems; Montreal, CA, September 27-30, 2022*

R-02/21/05/000/0/00-00/PU-341/2022

\* not member of ISL

## Peer reviewed publications

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### **Investigation of SiC thyristors with varying amplifying gate design**

S. SCHARNHOLZ, R. HASSDORF, D. BAUERSFELD, B. VERGNE, L.V. PHUNG\*, D. PLANSON\*

*Materials Science Forum, Trans Tech Publications Inc., 2022, 1062, pp. 493-497; doi: 10.4028/p-ztr5d7; hal-03702384; ASTRID ANR-11-ASTR-011-01 AGaThE*

R-03/13/05/000/0/00-00/PR-185/2022

### **The relevance of boundary conduction mode for high pulse power DC-DC converters using GCTs and IGCTs**

F. ALBRECHT, F. HAAG, V. BROMMER, K.F. HOFFMANN\*, O. LIEBFRIED

*PCIM Europe 2022, International Exhibition and Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management, Nürnberg, DE, May 10-12, 2022; doi: 10.30420/565822131; © VDE Verlag GmbH*

R-03/19/01/000/0/00-00/PR-336/2022

## Publications

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### **MEMS Gas get flow gyrometer. A numerical approach**

A. KECHAF\*, A. GIANI\*, P. COMBETTE\*, M. TEDJINI\*, C. GAUTHIER-BLUM, M. SCHNEIDER

*21st International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers), Virtual Conference, June 20-24, 2021; ©2021 IEEE; DOI: 10.1109/Transducers50396.2021.9495460;*

*ANR-astrid 2015 15-ASTR-0010-02*

R-03/16/07/599/3/00-00/PU-190/2022

### **Optimized junction termination extension and ring system for 11 kVz4H-SiC BJT**

A. AMMAR\*, M. LAZAR\*, B. VERGNE, S. SCHARNHOLZ, L. VIET PHUNG\*, C. SONNEVILLE\*, C. RAYNAUD\*, H. MOREL\*, D. PLANSON\*, M. ZIELINSKI\*

*45th International Semiconductor Conference (CAS), Poiana Brasov, RO, October 12-14, 2022; © 2022 IEEE;*

*DOI: 10.1109/CAS56377.2022.9934390;*

*ANR-18-CE05-0020-02*

R-03/13/05/815/3/00-00/PU-294/2022

**Peer reviewed publications**

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**Temperature dependent radiative properties of semi-transparent fiberglass-epoxy composite materials from 20 °C to 200 °C**

F. RETAILLEAU, V. ALLHEILY, L. MERLAT, J.-F. HENRY\*, J.H. RANDRIANALISOA\*

*International Journal of Heat and Mass Transfer* 184 (2022) 122319; doi.org/10.1016/j.ijheatmasstransfer.2021.122319;  
© 2021 Elsevier Ltd. Allrights reserved

R-05/21/03/000/0/00-00/PR-23/2022

**Temperature-controlled spectrophotometry: A simultaneous analysis of phase transition, thermal degradation and optical properties of semi-transparent composites from 20 °C to 450 °C**

F. RETAILLEAU, V. ALLHEILY, T. JEAN\*, L. MERLAT, J.-F. HENRY\*, J.H. RANDRIANALISOA\*

*Optics Express* 21125, Vol. 30, No. 12, June 6, 2022; © 2022 Optica Publishing Group; doi.org/10.1364/OE.455921

R-05/21/03/000/0/00-00/PR-116/2022

**Modélisation thermique d'un matériau composite semi-transparent soumis à un laser de haute énergie**

F. RETAILLEAU, V. ALLHEILY, L. MERLAT, J.-F. HENRY\*, J.H. RANDRIANALISOA\*

*SFT 2022, 30e Congrès Français de Thermique, Valenciennes, FR, 31 mai-03 juin 2022*

R-05/21/03/000/0/00-00/PR-125/2022

**Experimental investigations on the response of metallic and dielectric materials to laser irradiation in the kW range**

R. SCHMITT, T. MEYER, R. PÄTZOLD, J. KOKOT, B. FISCHER

*12th CIRP Conference on Photonic Technologies [LANE 2022], Fürth, DE, September 04-08, 2022;*  
*ScienceDirect, Procedia CIRP* 111 (2022) 859–863; doi.org/10.1016/j.procir.2022.08.098

R-05/21/03/000/0/00-00/PR-242/2022

**Polyvinylcarbazole: A new polymer host for passive optical limiting**

O. MULLER, M. GUERCHOUX, S. BRAUN, M. DANDOIS, H. CITAK, T. JEAN, L. MERLAT

*Nonlinear Optics and its Applications 2022, Proc. of SPIE Vol. 12143, 1214306; © 2022 SPIE; doi: 10.1117/12.2620663;*  
*SPIE Photonics Europe, 2022, Strasbourg, FR*

R-05/21/04/000/0/00-00/PR-258/2022

**Optical limiting and nonlinear optical properties of Cr<sub>2</sub>O<sub>3</sub> and WO<sub>3</sub> based polymer nanocomposites**

O. MULLER, M. GUERCHOUX, P. GIBOT, L. MERLAT, D. SPITZER

*Optics Continuum, Vol. 1, No. 11, pp. 2389-2403, November 15, 2022; © 2022 Optica Publishing Group;*  
doi.org/10.1364/OPTCON.474445

R-05/21/04/000/0/00-00/PR-293/2022



**Polyvinylcarbazole: A new polymer host for passive optical limiting**

O. MULLER, M. GUERCHOUX, S. BRAUN, M. DANDOIS, H. CITAK, T. JEAN, L. MERLAT

*SPIE Photonics Europe, 2022, Strasbourg, FR, May 25, 2022; Proceedings Vol. 12143, Nonlinear Optics and its Applications 2022; 1214306; © 2022 SPIE; doi.org/10.1117/12.2620663*

R-05/21/04/000/0/00-00/PU-120/2022

**Nonlinear optical methacrylate-based filters for optical limiting**

J. CAILLIEAUDEAUX, O. MULLER, L. MERLAT, M. GUERCHOUX, M. DANDOIS, C. DELAITE\*, A.-S. SCHULLER\*

*SPIE Photonics Europe, 2022, Strasbourg, FR, May 25, 2022; Proceedings Vol. 12143, Nonlinear Optics and its Applications 2022, 121430J; © 2022 SPIE; doi: 10.1117/12.2621502*

R-05/21/04/073/2/00-00/PU-124/2022

**Experimental study of radiative transfer in semi-transparent composite materials at different temperatures**

F. RETAILLEAU, V. ALLHEILY, L. MERLAT, J.-F. HENRY\*, J.H. RANDRIANALISOA\*

*Journal of Physics: Conference Series, Volume 2116; 8th European Thermal Sciences Conference (EUROTHERM 2021), Online Event, September 20-22, 2021; doi:10.1088/1742-6596/2116/1/012062*

R-05/21/03/000/0/00-00/PU-234/2022

# ► Protection technologies, security, situational awareness

Peer reviewed publications

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## **A new anthropomorphic mannequin for efficacy evaluation of thoracic protective equipment against blast threats**

J. BOUTILLIER, V. CARDONA\*, P. MAGNAN, M. OGIER\*, S. DE MEZZO, F. MONTESPAN\*, W. MENINI\*, J. MOSNIER\*, P. NAZ, N. J. PRAT

*Frontiers in Bioengineering and Biotechnology*, January 27, 2022, Volume 9: 786881; doi: 10.3389/fbioe.2021.786881  
R-04/17/01/000/0/00-00/PR-19/2022

## **Effect of low content sintering aids addition on properties of $\beta$ -SiC sintered by Spark Plasma Sintering**

F. DELOBEL, J. CAMBEDOUZOU\*, F. MOITRIER, S. LEMONNIER

*Journal of the European Ceramic Society* 42 (2022) 2609–2617; doi.org/10.1016/j.jeurceramsoc.2022.01.037; © 2022 Elsevier Ltd. All rights reserved

R-04/19/04/000/0/00-00/PR-28/2022

## **Doppler effect in the multiple-wavelength range-gated active imaging up to relativistic speeds**

A. MATWYSCHUK

*Journal of the Optical Society of America A*, Vol. 39, No. 3, March 2022; © 2022 Optical Society of America; doi.org/10.1364/JOSAA.440973

R-04/19/02/000/0/00-00/PR-72/2022

## **Experimental evaluation of earplug behavior in front of high-level impulse noises**

C. BLONDÉ-WEINMANN, P. HAMERY, T. JOUBAUD, V. ZIMPFER, S. DE MEZZO, S. ROTH\*

*EUROREGIO BNAM 2022, Joint Acoustic Conference, Aalborg, DK, May 09-11, 2022*; © 2022 EAA, NAA & DAS, CC-BY-NC-ND; ISBN: 978-87-995400-5-1; ISSN: 2245-4365

R-04/20/01/000/0/00-00/PR-105/2022

## **Comparison of super-resolution and noise reduction for passive single-photon imaging**

M. LAURENZIS, T. SEETS\*, E. BACHER, A. INGLE\*, A. VELTEN\*

*Journal of Electronic Imaging*, Vol. 31(3), 033042 (2022); doi: 10.1117/1.JEI.31.3.033042

R-04/19/01/000/0/00-00/PR-143/2022

## **Time domain analysis of photon scattering and Huygens-Fresnel back projection**

M. LAURENZIS, F. CHRISTNACHER

*Optics Express* 30441, Vol. 30, No. 17, August 15, 2022; doi.org/10.1364/OE.468668; © 2022 Optica Publishing Group

R-04/19/01/000/0/00-00/PR-193/2022

## **Experimental analysis of fluid-structure interaction between a blast wave and a sandwich add-on armor**

L. BLANC, D. LEBAILLIF\*, A. BUFALO\*

*AIP Advances* 12, 055105 (2022); doi.org/10.1063/5.0082336

R-04/16/01/000/0/00-00/PR-212/2022

\* not member of ISL

## **Numerical and experimental investigation of the sound transmission delay from a skin vibration to the occluded ear canal**

C. BLONDÉ-WEINMANN, T. JOUBAUD, V. ZIMPFER, P. HAMERY, S. ROTH\*

*Journal of Sound and Vibration* 542 (2023) 117345; © 2022 Elsevier Ltd. All rights reserved;  
doi.org/10.1016/j.jsv.2022.117345

R-04/20/01/000/0/00-00/PR-349/2022

## **Tracking visual landmarks of opportunity as rally points for unmanned ground vehicles**

M. REBERT, G. SCHMITT, D. MONNIN

*Sixth IEEE International Conference on Robotic Computing (IRC), Naples, IT, December 05-07, 2022,*  
DOI: 10.1109/IRC55401.2022.00086, © 2022 IEEE

R-04/19/03/000/0/00-00/PR-354/2022

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## **Publications**

### **3D spatial audio for improving hearing protection devices of soldiers**

P. NOWAK, U. ZOELZER\*, L. KRÖNER, V. ZIMPFER

*Military Scientific Research Annual Report 2020, Defence Research for the German Armed Forces*

R-04/15/02/000/0/00-00/PU-56/2022

### **Beiträge zur Modellierung der Phänomene die Gehörschutz bei starkem Impulslärm begrenzen**

C. BLONDÉ-WEINMANN, P. HAMERY, T. JOUBAUD, V. ZIMPFER, S. ROTH\*

*DAGA 2022 - 48. Jahrestagung für Akustik, Stuttgart, DE, 21.-24. März 2022*

R-04/20/01/000/0/00-00/PU-71/2022

### **Modellierung der HRTF in der horizontalen Ebene durch parametrisierte IIR-Filter**

L. KRÖNER, V. ZIMPFER

*DAGA 2022 - 48. Jahrestagung für Akustik, Stuttgart, DE, 21.-24. März 2022*

R-04/15/02/834/1/00-00/PU-75/2022

### **Prédiction objective de l'intelligibilité de la parole captée par des microphones non conventionnels grâce à l'apprentissage profond**

T. JOUBAUD, V. ZIMPFER

*CFA22: 16ème Congrès Français d'Acoustique, Marseille, FR, 11-15 Avril 2022*

R-04/20/01/000/0/00-00/PU-82/2022

### **Influence de la conduction tissulaire sur l'atténuation des bruits impulsionnels en simple et double protection**

T. JOUBAUD, P. HAMERY, V. ZIMPFER

*CFA22: 16ème Congrès Français d'Acoustique, Marseille, FR, 11-15 Avril 2022*

R-04/20/01/000/0/00-00/PU-83/2022

### **Altérations des formants par l'utilisation de microphones "non conventionnels"**

J. RICHARD, V. ZIMPFER, T. JOUBAUD, P. HAMERY, S. ROTH

*CFA22: 16ème Congrès Français d'Acoustique, Marseille, FR, 11-15 Avril 2022*

R-04/20/01/000/0/00-00/PU-86/2022

## **L'effet Doppler dans l'imagerie active à crénelage temporel multi-longueurs d'onde pour l'imagerie à quatre dimensions jusque dans les vitesses radiales relativistes**

A. MATWYSCHUK

*Optique, Congrès de la Société Française d'Optique, Nice, FR, 04-08 juillet 2022*

R-04/19/02/000/0/00-00/PU-192/2022

## **DEEPLomatics project: Deep-learning for the real-time multimodal localization and identification of small UAVs**

S. HENGY, E. BAVU, A. MATWYSCHUK, P. NAZ, B. FISCHER

*NATO SET-312 Proceedings Symposium on "Distributed Multi-Spectral/Statics Sensing", Bled, SI, May 23-24, 2022*

*ANR Astrid DEEPLomatics*

R-04/18/01/814/3/00-00/PU-263/2022

## **Invited Paper**

### **Enhanced visual perception through photon counting and computational imaging: What the time and number of photon events can tell us about the world around us**

M. LAURENZIS, F. CHRISTNACHER

*Proc. SPIE 12274, Emerging Imaging and Sensing Technologies for Security and Defence VII, 1227406 (4 November 2022); © 2022 SPIE; doi: 10.1117/12.2636434; Event: SPIE Security + Defence, 2022, Berlin, DE, September 05-08, 2022*

R-04/19/01/000/0/00-00/PU-287/2022

## **Cavity exploration by laser pulse stretching measurements with single photon counting**

F. CHRISTNACHER, M. LAURENZIS

*Proc. SPIE 12274, Emerging Imaging and Sensing Technologies for Security and Defence VII, 1227408 (4 November 2022); © 2022 SPIE; doi: 10.1117/12.2638936; Event: SPIE Security + Defence, 2022, Berlin, DE, September 05-08, 2022*

R-04/19/01/000/0/00-00/PU-288/2022

## **Anthropomorphic manikin for thoracic protective equipment evaluation against blast loading as regard to lung injury risk**

J. BOUTILLIER, S. DE MEZZO, N. PRAT, P. MAGNAN, P. NAZ

*Light-Weight Armour for Defence & Security, LWAG 2022, Fraunhofer EMI, Freiburg, DE, September 15-16, 2022*

R-04/17/01/000/0/00-00/PU-339/2022

## **Comparaison entre PESQ et MUSHRA pour l'estimation de la qualité audio d'un signal de parole enregistré par des microphones « non-conventionnels »**

V. ZIMPFER, T. JOUBAUD, J. RICHARD, P. HAMERY

*CFA22 : 16ème Congrès Français d'Acoustique, Marseille, FR, 11-15 Avril 2022*

R-04/20/01/000/0/00-00/PU-362/2022