



UNIVERSITÀ DEGLI STUDI DELL'AQUILA

Prof. Alfonso Paoletti

Curriculum scientifico

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(Curriculum in Italiano)

Alfonso Paoletti è Professore Associato di Tecnologie e Sistemi di Lavorazione presso il Dipartimento di Ingegneria Industriale e dell'Informazione e di Economia dell'Università dell'Aquila. Dall'A.A. 1993/1994 a oggi, è stato docente di diversi corsi attivi presso l'Università degli Studi di L'Aquila, quali Tecnologia Meccanica, Tecnologie Speciali, Controlli non Distruttivi, Controllo Qualità e Gestione Industriale della Qualità. La sua attività scientifica si svolge prevalentemente nel campo dei processi di lavorazione dei materiali sia con metodi tradizionali che avanzati, affrontando argomenti di caratterizzazione meccanica e strutturale, di fabbricazione, di lavorazione e di controllo. Tra i temi sui quali ha condotto le sue ricerche vi sono quelli riguardanti le metodologie di applicazione e collaudo dei rivestimenti ceramici su superfici metalliche ed in particolare la rilevazione dei difetti mediante metodi non distruttivi e quelli riguardanti la valutazione delle superfici lavorate sia con tecniche tradizionali che innovative. Nel campo delle lavorazioni meccaniche ha svolto indagini sulla rettifica, foratura e, nel campo dei metodi non tradizionali, sul fascio laser. Sono stati condotti studi sia teorici che sperimentali su materiali compositi a matrice plastica e metallica e materiali tradizionali, utilizzando sia dispositivi standard che apparecchiature predisposte ad hoc per la misura in-process di parametri tecnologici. Si è occupato inoltre di sistemi avanzati di giunzione tra materiali dissimili, quali metallo, polimero e composito. In questo contesto ha contribuito allo:

- Sviluppo di processi di giunzione termomeccanici: in questo ambito si è occupato principalmente di processi di saldature per attrito. Ha contribuito allo sviluppo di una macchina di prototipazione strumentata per il processo di saldatura per attrito in condizioni controllate. Tali apparecchiature hanno consentito di condurre studi sperimentali per la realizzazione di giunti metallo-polimero e metallo-composito. Questi studi hanno dimostrato la fattibilità del processo e la possibilità di applicare il processo di giunzione a materiali ad alte prestazioni (tra cui leghe di alluminio aeronautico, titanio, poliammide e PEEK).
- Sviluppo di processi di giunzione per attrito e mescolamento.
- Sviluppo di processi di giunzione laser.
- Sviluppo di sistemi avanzati di giunzione mediante clinching.
- Trattamenti superficiali con fascio laser.
- Processo di formatura laser.

(Curriculum in Inglese)

Alfonso Paoletti is an Associate Professor at the University of L'Aquila in the scientific disciplinary sector ING-IND/16 "Technologies and Machining Systems." From A.Y. 1993/94 up today, he has been a lecturer in different courses at the University of L'Aquila, such as Mechanical Technology, Non-Traditional Machining Processes, Non-Destructive Controls, Quality Control, and Industrial Management of Quality. He is currently a lecturer of Mechanical Technology for the Course in Industrial Engineering and the course Industrial Management of Quality for the Master Course in Management Engineering. In addition, he is a lecturer in the course "Advanced Characterization of Additive Manufacturing components" for Ph.D. students of "Industrial and Information Engineering and Economics." Since 1992 he has been dealing with composite materials machining, such as Polymer Matrix Composites (PMCs) drilling and Metal Matrix Composites (MMCs) grinding, non-destructive control techniques, and advanced

manufacturing processes of metal, plastic, and composites, such as laser machining and advanced joining processes between similar and dissimilar materials. In this context, he has contributed to:

- ? Development of experimental setup for drilling process control.
- ? Development of adaptive control system for PMCs drilling.
- ? Development of experimental setup for grinding process control of MMCs.
- ? Development of non-destructive characterization using holographic interferometry, speckles methods, and thermography.
- ? Development of destructive characterization tests for traditional and innovative materials.
- ? Development of thermomechanical joining processes (4 Italian Patents and 1 European Patent).
- ? Development of joining processes by friction and stirring.
- ? Development of laser processes, such as laser forming, welding, and laser surface treatments.

Elenco delle pubblicazioni.

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