Aim of the research activity:

1. Synthesis and reactivity of coordination compounds and organometallic derivatives, mainly of d\textsuperscript{8} transition metal ions (gold(III), palladium(II), platinum(II) and rhodium(I)) and d\textsuperscript{10} (gold(I)). The coordination chemistry of these metal ions has been studied with various heterocyclic nitrogen donor ligands such as substituted 2,2’-bipyridines. The interests range from the activation of C-H bonds (cyclometallation) to the design and synthesis of metal complexes (mainly gold and platinum derivatives) with potential antitumour activity. We strive to keep a balance between the pursuit of practical applications, such as catalysis and pharmacological applications, and more fundamental explorations. An important part of our work is the design and synthesis of novel polydentate ligands, mainly poly(pyridines), that impart desired reactivity preference on the metal center.

2. Development of organotransition metal catalysts containing chiral ligands capable to promote the formation of C-H and C-C bonds at unsaturated carbon centres in high chemo-, regio- and stereoselectivity. To this purpose the following tasks are pursued:
   a) design and synthesis of novel mono-, bi- and tri-dentate chiral ligands;
   b) preparation, characterization and chemical reactivity of late transition metal complexes with these new ligands;
   c) screening of the behaviour of these chiral complexes as catalysts in stereoselective reactions leading to C-H and C-C bond formation.

Keywords:
Noble metal complexes; C-H bond activation; Pharmacological applications of metal complexes; Enantioselective Catalysis; Chiral Ligands; Asymmetric Synthesis

List of publications
2) Synthesis of the First C-2 Cyclopalladated Derivatives of 1,3-di(2-pyridyl) benzene.


18) “Synthesis of internal alkenes via one-pot palladium-catalyzed and dehydrobromination reactions of 1,1-dibromo-1-alkenes” G. Chelucci,* F. Capitta, S. Baldino Tetrahedron 2008, 64, 10250


Name of components
Sergio Stoccoro; Maria Agostina Cinellu; Antonio Zucca; Elisabetta Alberico; Giorgio Adolfo Chelucci; Salvatore Baldino; Giuseppe Andrea Alesso; Fabio Cocco; Laura Maiore; Luca Maidich; Maria Serratrice.
### Position of the components of the Research Groups

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<thead>
<tr>
<th>Name</th>
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<th>Position *</th>
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<tr>
<td>Sergio</td>
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*: PO= Full professor; PA= Associate professor; RU= University researcher; PhD= Graduated student; PoD = Postdoctoral fellows; RC = CNR staff or other Institution;

### Equipment

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* Soon available 400 MHz NMR