

Main areas of the scientific activity and coworkers of GIULIO NATTA

Stability of solutions and application of X rays to the study of crystalline substances and of alloys (1923-1936)

Substances studied	Coworkers	Period
Alkaline chlorites	G.R. Levi	(1923)
Inorganic solids, complexes, spinels	M. Strada L. Passerini M. Baccaredda	(1928-1932) (1928-1936) (1932-1936)
Alloys, solid solutions and cases of isomorphism	M. Freri L. Passerini R. Pirani	(1927-1928) (1928-1929) (1932)
Organic substances		
Gas and liquid in solid state	G. Nasini E. Casazza R. Rigamonti	(1930) (1930) (1936)

Application of the electronic diffraction to the study of structures (1935-1937)

Substances studied	Coworkers	Period
Polymers and various elastomers	R. Rigamonti	(1936)
Colloids		
Various organic substances	M. Baccaredda R. Rigamonti	(1935) (1935)
Cellulose	M. Baccaredda	(1936)
Metals, alloys and metallic solid solutions	A. Giuriani	(1937)

Methanol and higher alcohols from CO and H₂ (1928-1957)

Subject	Coworkers	Period
Preparation and study of catalysts for the methanol synthesis	E. Casazza	(1931)
Preparation and study of catalysts for the synthesis of higher alcohols	M. Strada R. Rigamonti	(1930-1931) (1932)
Kinetic studies on the synthesis of methanol	G. Pastonesi	(1937-1938)
Adsorption measurements on catalysts	N. Agliardi	(1947)
Kinetics of the methanol synthesis	I. Pasquon G. Mazzanti P. Pino	(1953-1960) (1953-1955) (1953)
Studies of catalysts	P. Corradini	(1954)
Studies of the catalysts for the synthesis of methanol at low pressure	G. Mazzanti I. Pasquon	(1955) (1955)
Synthesis of higher alcohols	I. Pasquon	(1957)

Synthesis and polymerization of formaldehyde (1932-1933)

Subject	Coworkers	Period
Formaldehyde from methanol	M. Strada M. Baccaredda	(1932) (1932)
Polymers of formaldehyde	M. Baccaredda	(1932-1933)

Gasification of coal (1932-1938)

Subject	Coworkers	Period
Gasification with oxygen	M. Strada R. Rigamonti	(1932) (1938)

Synthesis of isoctane (1938-1943)

Subject	Coworkers	Period
Synthesis from water gas	M. Baccaredda	(1938)
Synthesis from isobutene	M. Baccaredda	(1939-1943)

Hydrogenation of furfural and carbohydrates (1939-1951)

Subject	Coworkers	Period
Hydrogenation of furfural	R. Rigamonti E. Beati	(1939-1941) (1939-1941)
Hydrogenation of carbohydrates	R. Rigamonti E. Beati	(1942-1943) (1942-1943)
Kinetics of the hydrogenation of glucose	E. Beati	(1943)
Extraction of furfural	E. Beati	(1951)

Fractionated absorption and its application to the fractionation of mixtures of C₄ hydrocarbons Synthesis of butadiene (1942-1953)

Subject	Coworkers	Period
Sitting-up of the fractionated absorption	G.F. Mattei	(1942)
Butadiene from ethanol	R. Rigamonti	(1947)
Butadiene purification	R. Rigamonti	(1947)
Theory of the fractionated absorption	G. Negri P.L. Gadina	(1952-1953) (1953)

Consecutives reactions (1945-1952)

Subject	Coworkers	Period
Kinetic studies and experimental verifications	M. Simonetta	(1945)
Definition of the general equations	E. Mantica	(1951-1952)

Application of ultrasounds (1948-1954)

Subject	Coworkers	Period
Study of high polymers and polymer solutions	M. Baccaredda	(1948-1951)
Study of liquids and liquid mixtures	F. Danusso	(1948-1954)

Oxosynthesis and similar reactions (1945-1966)

Subject	Coworkers	Period
Reactions with olefins, CO and H ₂ ; kinetic studies	E. Beati	(1945-1950)
Reactions with olefins, CO and H ₂ ; kinetic studies; mechanism	P. Pino R. Ercoli S. Castellano F.G. Barbieri	(1949-1952) (1952-1955) (1954-1955) (1954)
Reactions with olefins, CO and alcohols	P. Pino E. Ercoli E. Mantica	(1950-1952) (1951-1960) (1950)
Reaction with acetylene, CO alcohols and water	P. Pino G.C. Albanesi I. Pasquon	(1949-1952) (1956-1966) (1961)

Radicalic polymerization of vinyl monomers (1952-1956)

Subject	Coworkers	Period
Study of the polymerization of vinyl chloride. Characterization of the polymers	F. Danusso G. Moraglio D. Sianesi	(1952-1956) (1952-1954) (1953-1955)
Polymerization and oligomerization of acrylic and methacrylic monomers at high temperature	F. Danusso	(1953-1955)

Carbonylic complexes (1953-1967)

Subject	Coworkers	Period
Complexes of Co: synthesis and structure	E. Ercoli P. Corradini P. Chini F. Calderazzo M. Peraldo M. Massi Mauri G. Allegra	(1958-1966) (1953-1959) (1958-1960) (1967) (1961) (1959) (1966)
Complexes of Cr: synthesis and structure	R. Ercoli F. Calderazzo E. Bernardi P. Corradini G. Allegra E. Mantica E. Mostardini G. Pajaro	(1957-1967) (1957-1967) (1959) (1959) (1959) (1959) (1960) (1960)
Complexes of V: synthesis and structure	E. Ercoli F. Calderazzo P. Corradini G. Allegra A. Alberola R. Cini	(1959-1962) (1959-1963) (1959-1960) (1959-1961) (1959-1960) (1960)
Complexes of Fe: synthesis and structure	P. Chini M. Peraldo	(1960) (1960)

Isospecific polymerization of α -olefins and polymerization of ethylene (1954-1970)

Subject	Coworkers	Period
Synthesis of isotactic and stereoblocks poly α -olefins	P. Pino G. Mazzanti U. Giannini G. Crespi P. Longi	(1954-1957) (1954-1958) (1957) (1957) (1958)

Isospecific polymerization of α -olefins and polymerization of ethylene (1954-1970) (cont)

Subject	Coworkers	Period
Researches on the catalytic systems and their components, on the organometallic complexes of aluminium and titanium and on the polymerization mechanisms	P. Pino G. Mazzanti U. Giannini I. Pasquon E. Giachetti P. Longi E. Mantica F. Danusso M. Peraldo P. Corradini I.W. Bassi G.F. Pregaglia M. Farina D. Morero S. Cesca A. Zambelli M. Bressan G. Allegra L. Porri G. Gatti P. Ganis G. Pajaro A. Immirzi M. Giongo A.L. Segre	(1954-1959) (1954-1960) (1957-1967) (1957-1967) (1957-1960) (1957) (1957) (1956-1957) (1957) (1958-1962) (1958) (1959) (1959-1960) (1959-1960) (1959-1960) (1960-1968) (1960) (1960-1963) (1960-1962) (1961-1966) (1961-1962) (1961) (1963) (1968) (1968)
Crystallographic structure of the polymers	P. Corradini I.W. Bassi I. Pasquon M. Cesari G. Allegra	(1954-1960) (1955-1969) (1955) (1956-1957) (1969)
Ethylene polymerization	P. Pino M. Farina G. Mazzanti G. Giannini E. Mantica M. Ragazzini	(1954-1958) (1955-1958) (1957-1958) (1957-1958) (1957) (1958)

Isospecific polymerization of α -olefins and polymerization of ethylene (1954-1970) (cont)

Subject	Coworkers	Period
Physical and physico-chemical properties, determination of the molecular weights, conformation and morphology of the polymers	F. Danusso G. Moraglio G. Talamini M. Pegoraro F. Sabbioni M. Peraldo V. Giannella E. Flores G. Gianotti P. Corradini P. Ganis G. Polizzotti G. Allegra	(1954-1969) (1955-1969) (1956-1959) (1958-1964) (1958) (1958) (1958) (1958) (1959-1969) (1962) (1962) (1963-1964) (1970)
Spectroscopic investigations on the polymers: - Infrared	E. Mantica M. Peraldo G. Zerbi F. Ciampelli V. Zamboni M. Gussoni E. Lombardi A. Zambelli A.L. Segre L. Piseri G. Zerbi	(1955) (1955-1959) (1964-1968) (1964-1967) (1967) (1967) (1965-1967) (1965-1970) (1965-1968) (1968) (1969)
- Nuclear magnetic resonance	I. Pasquon E. Giachetti L. Giuffrè G. Pajaro M. Dente G. Mazzanti P. Longi F. Bernardini A. Zambelli M. Giongo A. Marinangeli A. Surico	(1956-1967) (1956-1960) (1958-1961) (1958) (1959-1962) (1959) (1959) (1959) (1962-1967) (1966) (1967) (1967)
- Raman-Laser	G. Crespi M. Baccaredda E. Butta F. Ranalli	(1957-1959) (1959) (1959) (1959)
Kinetics of the polymerization; elementary steps; regulation and distribution of the molecular weights		
Mechanical and technological properties of the polymers		

Isospecific polymerization of α -olefins and polymerization of ethylene (1954-1970) (cont)

Subject	Coworkers	Period
Analytical determinations on polymers and catalysts	L. Giuffrè F.M. Capizzi F. Cassani E. Losio	(1958-1967) (1959-1962) (1964-1966) (1965-1967)

Isospecific polymerization and copolymerization of the styrene and other vinylaromatic monomers differently substituted (1954-1969)

Subject	Coworkers	Period
Polymers and copolymers synthesis; Catalytic systems; kinetics; polymerization mechanism	F. Danusso D. Sianesi B. Calcagno A. Macchi G. Dall'Asta P. Ferruti G. Moraglio A. Feré	(1954-1965) (1956-1962) (1958-1959) (1959) (1962) (1965) (1968) (1968)
Crystallographic structure of the polymers	P. Corradini I.W. Bassi P. Ganis	(1955-1960) (1960) (1960)
Crystallizability, crystalline morphologie, statistical conformations; physical and physico-chemical properties of the polymers	F. Danusso G. Moraglio F. Sabbioni	(1955-1963) (1956-1965) (1958)
Spectroscopic investigations on the polymers: - Infrared - Nuclear magnetic resonance	D. Morero E. Mantica F. Ciampelli A.L. Segre P. Ferruti	(1960) (1960) (1960) (1969) (1969)

**Polymerization and copolymerization of conjugated diolefins. Optically active polymers
(1955-1970)**

Subject	Coworkers	Period
Synthesis of stereoregular polybutadienes (iso-1,2 and syndiotactic 1,2, <i>cis</i> -1,4 and <i>trans</i> -1,4)	L. Porri	(1955-1957)
Synthesis of stereoregular polyisoprene (<i>cis</i> -1,4, <i>trans</i> -1,4 and 3,4)	L. Porri A. Carbonaro	(1956-1964) (1964)
Synthesis of stereoregular 1,3 polypentadiene (<i>trans</i> -1,4 isotactic, <i>cis</i> -1,4 syndiotactic syndiotactic-1,2) and synthesis of other substituted polybutadienes	L. Porri G. Zanini A. Carbonaro M.C. Gallazzi	(1960-1966) (1960) (1962) (1966)
Synthesis of <i>trans</i> -1,4 isotactic and <i>cis</i> -1,4 optically active polypentadienes	L. Porri A. Carbonaro G. Lugli S. Valenti	(1961-1963) (1961-1963) (1961-1963) (1963)
Structure of the conjugated polydiolefins	P. Corradini I.W. Bassi G. Allegra G. Pereo P. Ganis	(1955-1968) (1957-1968) (1962-1963) (1963-1964) (1965)
Investigations on the stereospecific polymerization of conjugated diolefins: catalytic systems, polymerization mechanism; organometallic complexes with diolefins	L. Porri G. Zanini A. Mazzei L. Fiore A. Palvarini A. Carbonaro L. Borghi G. Lugli S. Valenti A. Greco M.C. Gallazzi G. Allegra U. Giannini P. Pino G. Sovarzi A. Lionetti M. Donati F. Conti G. Vitulli A. Di Corato M. Zocchi	(1956-1970) (1959-1961) (1959) (1959) (1959) (1960-1968) (1960) (1961-1963) (1963) (1964-1968) (1964-1967) (1965-1969) (1965) (1965) (1965) (1965-1966) (1966) (1966) (1967-1969) (1967-1969) (1969)

**Polymerization and copolymerization of conjugated diolefins. Optically active polymers
(1955-1970) (cont)**

Subject	Coworkers	Period
Copolymerization of diolefins	L. Porri I. Pasquon A. Zambelli A. Carbonaro	(1960-1963) (1960) (1960) (1963)
Spectroscopic investigations: - Infrared	D. Morero F. Ciampelli E. Mantica M.P. Lachi M. Cambini E. Lombardi A.L. Segre	(1956-1961) (1959-1964) (1960-1962) (1964-1967) (1964) (1963) (1963)
- Nuclear magnetic resonance		
Physical and physico-chemical properties	G. Moraglio F. Danusso G. Crespi G. Gianotti F. Sabbioni U. Flisi M. Pegoraro G. Allegra A. Pavan P. Cremonesi	(1961-1965) (1961) (1961-1963) (1961) (1961) (1962-1964) (1963-1967) (1964-1967) (1965) (1965)
Mechanical properties of polydiolefins elastomers	G. Crespi U. Flisi S. Leghissa G. Guzzetta F. Sabbioni	(1961-1963) (1961-1963) (1961) (1961) (1961)

Ethylene-propylene and other α -olefins copolymerization. Polyolefinic elastomers
 (1957-1967)

Subject	Coworkers	Period
Synthesis of the copolymers	G. Mazzanti A. Valvassori G. Sartori I. Pasquon A. Zambelli L. Porri F. Ciampelli S. Faina	(1957-1961) (1957-1965) (1960-1965) (1961-1963) (1961-1963) (1961) (1962) (1965)
Investigations on the copolymerization: reactivity ratios; kinetics; molecular weights; distribution of monomeric units	A. Valvassori F. Mazzanti G. Sartori G. Pajaro G. Moraglio D. Morero F. Ciampelli	(1957-1967) (1957-1963) (1958-1963) (1957-1963) (1959) (1960) (1967)
Preparation, physical and mechanical properties and vulcanization of the polyolefinic elastomers	G. Crespi M. Bruzzone E. Di Giulio P. Scaglione G. Ballini G. Flisi A. Valvassori G. Mazzanti G. Sartori	(1959-1964) (1959-1961) (1961-1963) (1961) (1961) (1963-1964) (1963) (1963) (1963)

Stereospecific polymerization of α -olefins differently substituted (1955-1968)

Subject	Coworkers	Period
Synthesis of isotactic polymers and catalytic systems		
- Polymers of α -olefins substituted with metals of the IV group	G. Mazzanti P. Longi F. Bernardini G. Giannini D. Sianesi G. Dall'Asta G. Mazzanti G. Giannini S. Cesca N. Oddo D. Sianesi G. Caporiccio G.F. Pregaglia M. Binaghi G. Mazzanti P. Longi G. Dall'Asta F. Bernardini G. Mazzanti P. Longi F. Bernardini P. Longi G. Dall'Asta G. Dall'Asta A. Carbonaro A. Greco	(1958-1959) (1958-1959) (1958-1959) (1968) (1959) (1959-1963) (1959) (1959) (1959) (1960) (1960-1961) (1960) (1960-1961) (1960) (1960-1961) (1960) (1960-1961) (1960) (1960-1961) (1960) (1960-1961) (1960) (1960-1961) (1960) (1960-1961) (1960-1961) (1968) (1968)
- Polyvinylcyclohexene		
- Polyvinylisobutylethers		
- Polyvinylcyclopropane		
- Poly α -olefins with terminal phenylic groups		
- Poly 2-vinylpyridine		
- Polyacrylates and polymethacrylates		
- Poly N-vinyldiphenylamine		
- Poly α -alchilacrylonitrile		
- Poly N-vinylcarbazolo		
- Polyvinylethylsilane		
Synthesis of syndiotactic polyvinylchloride	U. Giannini S. Cesca	(1962) (1962)
Structure of the polymers	I.W. Bassi P. Corradini G. Allegra	(1955-1968) (1955-1959) (1965)
Spectroscopic investigations	M. Peraldo F. Ciampelli	(1960-1961) (1966)
Physical and physico-chemical properties of the crystalline PVC	F. Danusso A. Crugnola	(1968) (1968)

Various polymers: synthesis, structure, characterization, catalytic systems (1956-1970)

Subject	Coworkers	Period
Crystalline polypropyleneoxide	G. Dall'Asta P. Corradini	(1956) (1956)
Polyacetylene	G. Mazzanti P. Corradini E. Lombardi L. Giuffrè L. Porri M.C. Gallazzi G. Vitulli	(1958) (1958) (1958) (1958) (1967) (1967) (1967)
Poly 1-hexyne	G. Mazzanti G.F. Pregaglia M. Peraldo	(1959) (1959) (1959)
Isotactic higher polyaldehydes	G. Mazzanti P. Chini A. Valvassori P. Corradini I.W. Bassi	(1960) (1960) (1960) (1960-1961) (1960-1961)
Polyallylbenzene	G.F. Pregaglia M. Binaghi	(1961) (1961)
Crystalline polyisocianates	J. Di Pietro M. Cambini	(1962) (1962)
Polyallylacrylates	M. Donati M. Farina	(1963) (1963)
Poly 1-cyanobutadiene 1,3	G. Giannini M. Cambini A. Cassata	(1963) (1963) (1963)
Poly <i>trans</i> -1,2 divinylcyclobutane	A. Valvassori G. Sartori F. Ciampelli	(1963) (1963) (1963)
Polynorbornenes	G. Sartori A. Valvassori N. Canali F. Ciampelli	(1963-1964) (1964) (1963) (1963)

Various polymers: synthesis, structure, characterization, catalytic systems (1956-1970)
 (cont)

Subject	Coworkers	Period
Copolymers of formaldehyde	G.F. Pregaglia G. Mazzanti M. Binaghi G. Rebaudo V. Zamboni	(1963) (1963) (1963) (1968) (1968)
Poly β -(N-carbonyl)ethylmethacrylate	P. Longi E. Pellini	(1964) (1964)
Polylactones and polycycloketones	P. Longi F. Greco M. Mapelli	(1965) (1965) (1965)
Polycyclodiolefins	A. Carbonaro A. Greco G. Dall'Asta A. Valvassori G. Sartori	(1967) (1967) (1967) (1967) (1967)
Polyallene	L. Porri M.C. Gallazzi G. Vitulli	(1967) (1967) (1967)
Polytetraindane and polytetraindene	G. Dall'Asta G. Motroni	(1968) (1968)
Oligomers of norbornadiene with acetylenic hydrocarbons	A. Carbonaro A. Greco G. Dall'Asta	(1968) (1968) (1968)

Grafted copolymers: preparation and properties (1958-1971)

Subject	Coworkers	Period
Poly α -olefins grafted with polystyrene, polyacrylate, methyl polymethacrylate or acrilic polyacid	E. Beati M. Pegoraro F. Severini D. Pagani C. Tavazzani A. Penati	(1958-1968) (1960-1968) (1958-1968) (1964) (1968) (1969)

Grafted copolymers: preparation and properties (1958-1971) (cont)

Subject	Coworkers	Period
Ethylene-propylene copolymers grafted with polystyrene, polyvinylchloride, polyacrylic acid or polyvinylacetate	M. Pegoraro F. Severini A. Crugnola C. Tavazzani F. Danusso	(1965-1971) (1965-1970) (1965-1969) (1967) (1969)
Analysis of peroxydate polymers	L. Giuffrè	(1964-1968)

Polytactic polymers. Asymmetric synthesis (1958-1969)

Subject	Coworkers	Period
Diisotactic polymers	M. Farina M. Peraldo G. Bressan	(1958-1962) (1958-1962) (1962)
Tritactic polymers	M. Farina M. Donati M. Peraldo	(1960-1965) (1960-1965) (1960)
Asymmetric synthesis of polytactic polymers	M. Farina M. Donati M. Peraldo M. Bressan	(1960-1969) (1960) (1961) (1961-1963)
Asymmetric synthesis of polybenzo- and polynaphthofurans	M. Farina G. Bressan	(1963-1966) (1963-1966)
Structure of the crystalline polymers	P. Corradini P. Ganis	(1960-1963) (1963)

Syndiospecific polymerization of propylene (1960-1969)

Subject	Coworkers	Period
Synthesis of the polymer	I. Pasquon A. Zambelli	(1960) (1960)
Structure and conformation of the polymer	P. Corradini M. Peraldo G. Allegra A. Zambelli G. Zerbi	(1960) (1960-1965) (1964) (1965) (1969)

Syndiospecific polymerization of propylene (1960-1969) (cont)

Subject	Coworkers	Period
Investigations on the catalytic systems; kinetics; polymerization mechanism	A. Zambelli I. Pasquon S. Signorini M. Giongo G. Tosi	(1961-1968) (1961-1968) (1967-1968) (1968) (1968)
Separation and physical properties of the polymer	M. Pegoraro	(1960-1963)

Alternanting crystalline polymers of ethylene and 2-vinylpyridine (1961-1965)

Subject	Coworkers	Period
Copolymers of ethylene with 2-butene, cycloolefins or butadiene: synthesis and catalytic systems	G. Dall'Asta I. Pasquon A. Zambelli A. Valvassori G. Mazzanti	(1961-1962) (1961-1964) (1961-1964) (1961-1962) (1961-1962)
Structure of the copolymers	P. Corradini I.W. Bassi P. Ganis G. Allegra F. Ciampelli	(1962-1964) (1962-1964) (1962-1964) (1962-1964) (1964)
Copolymers 2-vinylpyridine-stilbazole: synthesis and catalytic systems	P. Longi U. Nordio	(1965) (1965)

Stereoregular polycycloolefins. Elastomers (1962-1968)

Subject	Coworkers	Period
Polycyclobutenamers: synthesis, catalytic systems and mechanisms	G. Dall'Asta G. Motroni L. Porri G. Mazzanti R. Manetti G. Carella	(1962-1968) (1963-1968) (1962-1965) (1962-1964) (1966-1968) (1966)
Higher polycycloolefins: synthesis, catalytic systems and mechanisms	G. Dall'Asta G. Mazzanti L. Porri M.C. Gallazzi G. Carella	(1964-1966) (1964) (1964) (1964) (1966)

Stereoregular polycycloolefins. Elastomers (1962-1968) (cont)

Subject	Coworkers	Period
Structure of the polymers	I.W. Bassi	(1966)
Elastomers from cycloolefins	G. Dall'Asta	(1968)

Stereoregular polymers and copolymers of ketene and dimethylketene: synthesis, characterization, and catalytic systems (1960-1963)

Subject	Coworkers	Period
Ketene polymers	G.F. Pregaglia G. Pozzi	(1963) (1963)
Dimethylketene polymers	G. Mazzanti G.F. Pregaglia M. Binaghi M. Cambini	(1960-1962) (1960-1962) (1960-1962) (1962)
Alternanting copolymers of dimethylketene with acetone or aldehydes	G.F. Pregaglia M. Binaghi G. Mazzanti G. Pozzi V. Zamboni	(1960-1963) (1960-1963) (1960-1962) (1962) (1963)

Florurated polyolefins (1961-1970)

Subject	Coworkers	Period
Synthesis, catalytic systems	D. Sianesi G. Caporiccio	(1963-1965) (1963-1965)
Structure of the polymers	I.W. Bassi G. Allegra	(1961-1965) (1961-1965)
Infrared investigations	G. Cortili G. Zerbi	(1967-1970) (1967-1970)

Inclusion compounds. Polymerization of included monomers – Asymmetric polymerization (1964-1970)

Subject	Coworkers	Period
Inclusion compounds in perhydrotriphenylene and radicalic polymerization of included diolefins	M. Farina G. Audisio M. Löffelholz	(1964-1970) (1967-1970) (1967-1968)
Asymmetric polymerization of <i>trans</i> -1,3 included pentadiene	M. Farina G. Audisio M.T. Gramegna	(1967-1970) (1967-1970) (1970)
Roentgenographic investigations	G. Allegra A. Immirzi A. Colombo	(1964-1968) (1967) (1967)

Polymers for biomedic and pharmacologic applications (1965-1970)

Subject	Coworkers	Period
Polymers for the prevention of the silicose	F. Danusso P. Ferruti M.A. Marchisio E. Vigliani E. Pernis	(1965-1966) (1965-1966) (1965-1968) (1965-1966) (1965-1966)
Polymers with aminic functions	P. Ferruti F. Danusso	(1966-1970) (1966-1970)
Polymers with aminic, amidic and aminic functions. Emocompatible materials and antagonists of eparine	F. Danusso P. Ferruti F. Ferroni M.A. Marchisio	(1967-1970) (1967-1970) (1967) (1970)