

Bianchi, Luigi | Encyclopedia.com

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(b. Parma, Italy, 18 January 1856; d. Pisa, Italy, 6 June 1928)

mathematics.

The son of Francesco Saverio Bianchi, a jurist and senator of the kingdom of Italy, Bianchi entered the Scuola Normale Superiore of Pisa after passing a competitive examination in November 1873. He studied under Betti and Dini at the University of Pisa, from which he received his degree in mathematics on 30 November 1877. He remained in Pisa for two additional years, pursuing postgraduate studies. Later he attended the universities of Munich and Göttingen, where he studied chiefly under Klein.

Upon his return to Italy in 1881, Bianchi was appointed professor at the Scuola Normale Superiore of Pisa, and after having taught differential geometry at the University of Pisa, in 1886 he was appointed extraordinary professor of projective geometry on the basis of a competitive examination. During the same year he was also made professor of [analytic geometry](#), a post he held for the rest of his life. By special appointment Bianchi also taught higher mathematics and analysis. After 1918 he was director of the Scuola Normale Superiore. He was a member of many Italian and foreign academies, and a senator of the kingdom of Italy.

Bianchi concentrated on studies and research in metric differential geometry. Among his major results was his discovery of all the geometries of Riemann that allow for a continuous group of movements, that is, those in which a figure may move continuously without undergoing any deformation. These results also found application in Einstein's studies on relativity. In addition, Bianchi devoted himself to the study of non-Euclidean geometries and demonstrated how the study of these geometries may lead to results in Euclidean geometry that through other means, might have been obtained by more complex methods.

A writer of clear and genial treatises, Bianchi wrote many works on mathematics, among which are some dealing with functions of a variable complex, elliptic functions and continuous groups of transformations.

BIBLIOGRAPHY

I. Original Works. *Lezioni di geometria differenziale* (Pisa, 1886; 3rd ed., 1922–1923); *Lezioni sulla teoria dei gruppi di sostituzioni e delle equazioni algebriche secondo Galois* (Pisa, 1900); *Lezioni sulla teoria aritmetica delle forme quadratiche binarie e ternarie* (Pisa, 1912); *Lezioni di geometria analitica* (Pisa, 1915); *Lezioni sulla teoria delle funzioni di variabile complessa e delle funzioni ellittiche* (Pisa, 1916); *Lezioni sulla teoria dei gruppi continui finiti di trasformazioni* (Pisa, 1918); *Lezioni sulla teoria dei numeri algebrici e principii di geometria analitica* (Bologna, 1923). Bianchi's works were collected in *Opere* Edizioni Cremonese, 11 vols, (Rome, 1952–1959); Vol. I, pt. 1 contains a bibliography and analyses of Bianchi's scientific work by G. Scorza, G. Fubini, A. M. Bedarida, and G. Ricci.

II. Secondary Literature. Works on Bianchi are G. Fubini, "Luigi Bianchi e la sua opera scientifica," in *Annali di matematica*, 4th ser., **6** (1928–1929), 45–83, and "Commemorazione di Luigi Bianchi," in *Rendiconti della Accademia nazionale dei Lincei*, Classe di scienze fisiche matematiche e naturali, ser. 6a, **10** (1929), xxxiv–xliv (appendix).

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