



Contribution ID: 829

Type: Talk in the parallel session

## The three royal summer solstice markers unveiled at Santa Maria degli Angeli meridian line in Rome

Friday, 9 July 2021 09:10 (5 minutes)

The Meridian Line of Santa Maria degli Angeli in Rome has been realized in 1700-1702 upon the will of Pope Clement XI, since when he was Cardinal, after the project of Francesco Bianchini (1662-1729) to measure with unprecedented accuracy the tropical year and the variation of the obliquity of the ecliptic.

At this *Great Gnomon* for the first time in the history of astronomy, the seasonal effects on the atmospheric refraction and the effects of stellar aberrations were measured, but while the first were recognized the latter become systematic effects included in the errors of measurements. At the Marcel Grossmann Meeting of Berlin (2006) this discovery was firstly presented; after other historical data were analyzed (2014), while in IAU GA 2018 in Vienna the recognition of summer solstice markers was announced. The two markers are solstitial because they are on the same daily hyperbola of the solar center entering Cancer in 1721. The King's one is no longer illuminated by the Sun since 1750 Vanvitelli's renovations. A third marble marker on the same hyperbola is on the floor of the Basilica, dedicated to the King James III in 1721: FELIX TEMPORVM REPARATIO meaning "Return to good times", after 1719 marriage with Maria Klementyna Sobieska. **These markers are offset** with respect to the Great Gnomon, because it was unmodifiable at the Cancer's solstice. This chronological sequence explains also why in 1703 book Bianchini did not mention these markers. The game of chess, the constant measurements with school students (2018-2021 IGEA campaign), the reply of this Meridian's functionalities on the school soccer-field, the Science Polish Academy allowed this unthinkable discovery.

### References

- De Nummo et Gnomone Clementino Bianchini (1703)
- MG11 on Clementine Gnomon (2006)
- Journées Systèmes de Références (2014)
- IAU XXXGA on Clementine Gnomon (2018)

**Primary author:** SIGISMONDI, Costantino (ICRA Sapienza and ICRANET Pescara)

**Presenter:** SIGISMONDI, Costantino (ICRA Sapienza and ICRANET Pescara)

**Session Classification:** Teaching Einsteinian Physics to School Students

**Track Classification:** Education: Teaching Einsteinian Physics to School Students