

The Supersymmetric World: The Beginnings of the Theory edited by G Kane and M Shifman, World Scientific, ISBN 981024522X.

It is notoriously difficult to write with perspective about the history of science of very recent events. This is particularly true in the case of supersymmetry. Actually, supersymmetry is not at all a recent idea; it is about 30 years old and, when compared with the pace of recent progress in science, it seems to come from another geological era.

Nevertheless, the role of supersymmetry in the description of the physical laws and its destiny in the history of scientific ideas are not yet settled.

Physicists are struck by its mathematical beauty, its trustworthy promises to merge general relativity with the principles of quantum mechanics, and its symmetry properties that allow a coherent description of the vastly hierarchical structure of the relevant size scales of the microworld. Nevertheless, we still lack definite experimental evidence for its existence.

This book does not attempt to present a chronological history of the events that led to the theoretical discovery of supersymmetry and its successive developments. Instead it collects personal reminiscences of the pioneers and founders of supersymmetry. In this way it gives the reader all of the elements necessary to reconstruct his/her own favourite history.

Supersymmetry is by now a familiar concept among both theoretical and experimental particle physicists. Entering an auditorium during a conference or a seminar on high-energy physics and listening to a speaker expounding on the production rates of gluinos and squarks, you certainly get the impression that these particles are real entities with well measured properties. In fact they are just a theoretical conjecture, the confirmation or disproof of which is waiting for the Large Hadron Collider to operate at CERN. But how many people in that auditorium know why supersymmetry was first introduced in particle physics, or how superstrings were invented (by

Ramond, Neveu and Schwarz) before supersymmetry was even known, or, in a more anecdotal vein, how the name developed from the super-gauge symmetry' of Wess and Zumino to super-symmetry' (with the hyphen) of Salam and Strathdee? This book is excellent reading for all of those (in that auditorium or not) who do not know the answers or just want to know more.

In the beginning, supersymmetry was a solution in search of a problem. The first proponents did not have in mind the hierarchy puzzle or quantum gravity, which are the main arguments used now to motivate supersymmetry and which did not appear in scientific literature until the early 1980s. Golfand and Likhtman invented supersymmetry when trying to understand parity-violation in weak interactions (before the Standard Model of electroweak interactions emerged). Volkov and Akulov introduced non linear supersymmetric transformations to explain massless neutrinos (interpreted as Goldstone fermions). Then Wess and Zumino rediscovered supersymmetry on the other side of the Iron Curtain and, with formidable theoretical developments, opened the gate to the superworld.

There is a lot to be learned from the early developments of supersymmetry and this book provides the necessary material in an unusual form – through personal recollections. It has to be said that many of the contributions contain technical discussions of the theoretical progress that require a good scientific knowledge on the part of the reader. However, these are mixed with reminiscences, personal remarks and anecdotes that make the reading more suggestive and captivating.

The book also contains an essay by R Di Stefano that attempts a systematic study of the historical developments of supersymmetry. I found this essay, written in 1988, too dated to have sufficient vision of the field. On the other hand, most contributions from the original founders of supersymmetry are full of interesting remarks, both from scientific and historical points of view. Particularly vivid is the chapter written by Yuri Golfand's wife, with an intense and passionate portrait of her

husband and of the sufferings, injustices and intellectual humiliations borne by the Jews in the Soviet Union.

Gianfrancesco Giudice, CERN.

Books received

ICHEP 2000: Proceedings of the 30th International Conference on High-Energy Physics edited by C S Lim and Taku

Yamanaka, World Scientific, ISBN 9810245335, two-volume set £179.

The record of the symposium held in Osaka on 27 July – 2 August 2000.

Sixty Years of Double Beta Decay: from Nuclear Physics to Beyond Standard Model Particle Physics by H V Klapdor-

Kleingrothaus, World Scientific, ISBN 9810237790, £147.

A useful review (62 pages) and bibliography (33 pages), with 1200 pages of reprinted papers, including pioneer neutrino papers (at the front) and extracts from *CERN Courier* (at the back).

Particle Physics and the Universe: Proceedings of the Nobel Symposium, 20–25 August 1998 edited by L Bergström, P Carlson and C Fransson, World Scientific, ISBN 9810244592, £55.

This includes a tribute to David Schramm (who died on 19 December 1997) by Michael Turner, and many contributions, then topical, on cosmology and astrophysics, by distinguished people.

Basics and Highlights in Fundamental Physics, Proceedings of the International School of Sunbuclear Physics edited by

Antonino Zichichi, World Scientific, ISBN 981024536X, £121.

The record of a school held in Erice, Sicily, in August/September 1999. It is prefaced by tributes to Bjorn Wiik, who died on 26 February 1999, by Kjell Johnsen, Horst Wenninger and Günter Wolf, and it goes on to cover basics, theoretical and experimental highlights, and a special session for new talents. Gerard 't Hooft gave the opening lecture on the Holographic Principle.

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CES Physics News for Late 2001

Q2: Acquisition-Oriented PMCs

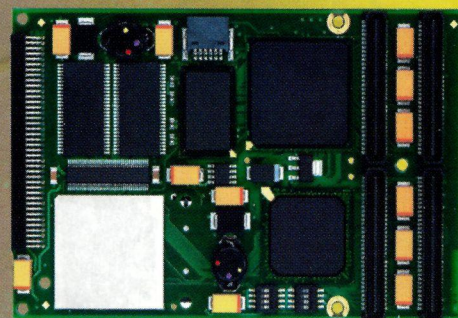
MFCC 8443

Hardware

- Latest IBM PowerPC processor (up to 666 MHz 750 CXe)
- 400 KGates user-specific front-end FPGA
- PCI 64-bit Master / Slave

Software

- VxWorks and LynxOS BSPs for RI03 host processor



Q3: Computing Core PMCs

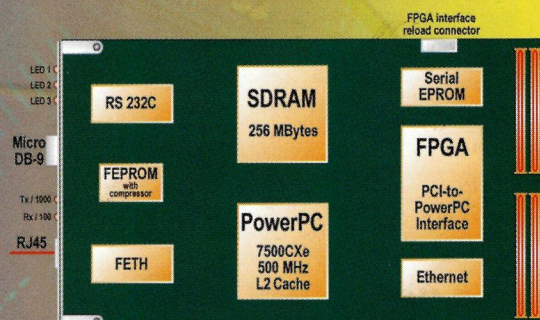
MFCC 8442BD

Hardware

- Same specs as the MFCC 8443 but with a Fast Ethernet port and a larger memory (up to 256 MBytes) replacing the front-end FPGA

Software

- VxWorks and LynxOS BSPs for RI03 host processor



Q4: Network Interface

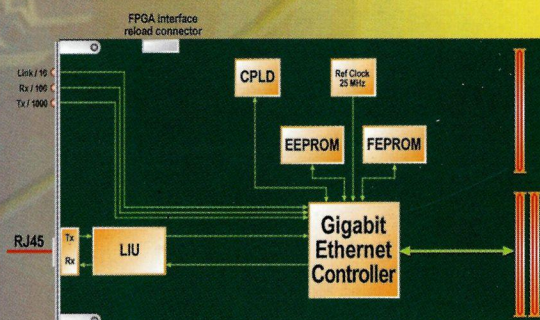
Gigabit Ethernet PMC

Hardware

- Latest INTEL ethernet controller

Software

- Optimized VxWorks and LynxOS drivers



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