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Personal recollections in memory of Vesa Ruuskanen and Bob Thews

The advent of finite temperature lattice QCD in 1980 confirmed that hot strongly interacting matter will be transformed into a new medium of deconfined quarks and gluons, the primordial quark—gluon plasma. It was thus natural to see if this state of the early universe could somehow still be produced today, in terrestrial laboratories. An experimental program based on high energy nuclear collisions was developed at a meeting which Maurice Jacob and I convened in Bielefeld in 1982, and in the mid-eighties the planning and construction of "heavy ion experiments" was well underway both at CERN and at Brookhaven. At the 1987 Quark Matter Meeting in Nordkirchen/Germany, the first results were reported.

While the new heavy ion program was politically welcomed at CERN for a variety of reasons, one could not really say that the CERN physics community mustered much enthusiasm for the search of the quark–gluon plasma. At a seminar, Richard Feynman noted "if I throw my watch against the wall, I get a broken watch and not a new state of matter", and many CERN physicists shared his skepticism about producing matter through collision. Thanks to the efforts of Maurice Jacob, I was able to join in 1989 the CERN Theory division on a staff position, on leave from Bielefeld University, with the charge to broaden the theory basis for the new field. I felt it best to search for some colleagues willing to form a collaboration with this aim, and to carry out this task on as sound and as theoretical a level as possible. We identified as the main tools for the QGP search electromagnetic radiation (real and virtual photons), hidden and open heavy flavor, and jets. The aim was to study these *Hard Probes* in proton–proton and proton–nucleus collisions, with perturbative QCD and the parton distributions from deep inelastic scattering as inputs. The

outcome should then provide a calibration to be used for determining the modifications caused by the new medium expected in nucleus–nucleus collisions.

CERN was willing to support these efforts, and when Xin-Nian Wang agreed to join as coorganizer, so was LBL Berkeley. The *Hard Probe Cafe* was born, and it first met at CERN in February 1994 and later that year, in July 1994, again at Berkeley. Besides Xin-Nian and myself, the initial hard probers were

J. Cleymans, K. Eskola, R.V. Gavai, S. Gavin, S. Gupta, D. Kharzeev, E. Quack, K. Redlich, P.V. Ruuskanen, G. Schuler, K. Sridhar, D.K. Srivastava, R.L. Thews & R. Vogt.

The participation of Vesa and Bob was for me absolutely essential, and indeed they played a crucial role from the very beginning. But let me here enter on a couple of little private detours, before going on with physics.



Vesa Ruuskanen

I first met Vesa in 1970, during a one-year stay as NORDITA fellow in Helsinki. Vesa was something of a country-boy from Rantasalmi in the big city environment of Helskinki, and I remember a party where it was found that all of the physicists there had attended the same high school in Helsinki – all but Vesa. Although normally quite restrained, Vesa could not resist from saying "so there seem to be two ways to success in physics in Finland – either you went to that high school, or you have talent". To be sure, Vesa was for me a valued colleague, but even more he was a true friend. We spent many hours doing physics together, but even more skiing together. In 1980, we spent an unforgettable week in Northern Karelia, near Kuusamo; getting there was already an adventure, driving at impossible speed (for a non-Finn) over uncleared ice and snow-covered roads – Vesa called that "Finnish roulette". There I learned something that Vesa knew from his childhood: around $-30\,^{\circ}$ C, the snow undergoes a phase transition and the crystals take a form which makes skiing more difficult...

Shortly after we first met, in 1972, Vesa had joined the staff of the University of Jyväskylä in central Finland – the first place I had ever visited in Finland, in 1960, to meet an old friend of mine from college days. At that time, the place seemed to be the true end of the world, where the airport was a cottage heated by a wood-burning stove and the ships on the lake froze in for six months or more. Yet the city is the home of the world-famous architect Alvar Aalto; many of the university buildings were planned by him, and much of the Finnish design emulated all over

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