



Frascati, February 11, 2004

Note: **BM-12****REPORT ON DAΦNE MD OF FEB. 11th, 2004**

C. Vaccarezza, A. Drago, A. Gallo, S. Guiducci, C. Milardi, M. Zobov

**1. Introduction**

This note summarizes the results obtained in the DAΦNE Machine Development (MD) of February 11, 2004.

**2. Measurements and results**

The measurements have been addressed to investigate the effect of parasitic crossing on FINUDA luminosity, changing the spacing of the multibunch pattern. The results are reported in Table 1.

Table 1. The relevant e+e- parameters are reported in this table, current roundness and lifetime, vs the achieved luminosity value plus the geometric one, for the two collision configurations: 45 consecutive filled bunches with 1.6 m spacing (mod 2), and the same with .8 m spacing (mod1).

<i>Multibunch pattern</i>	<i>I (mA)</i>	<i>R</i>	<i>t(s)</i>	<i>I<sup>+</sup>(mA)</i>	<i>R<sup>+</sup></i>	<i>t<sup>+</sup>(s)</i>	<i>L geo (%)</i>	<i>L(cm<sup>-2</sup> s<sup>-1</sup>)</i>
<b>45 mod 2</b>	347	0.22	3200	236	0.13	2100		
	410	0.19	2700	330	0.17	2500	67	2.44E+031
	385	0.21	2900	307	0.15	2200	78	2.45E+031
	449	0.22	3000	272	0.15	2000	73	2.38E+031
	<b>417</b>	<b>0.25</b>	<b>3500</b>	<b>400</b>	<b>0.16</b>	<b>1700</b>	<b>64</b>	<b>2.88E+031</b>
	364	0.22	3100	337	0.15	2100	78	2.54E+031
<b>45 mod 1</b>	<b>436</b>	<b>0.24</b>	<b>1290</b>	<b>441</b>	<b>0.16</b>	<b>1100</b>	<b>61</b>	<b>3.10E+031</b>
	401	0.22	1300	411	0.15	1400	71	3.20E+031

**3. Conclusions**

No exhaustive measurement set has been carried on because of a severe DAΦNE machine fault during the MD shift, nevertheless a robust reduction of the lifetime of the two beams appears for the 0.8 m spacing case (mod 1), see for comparison rows with bold numbers. No significant differences in the luminosity are evident for the two cases.