







Polymer synthesized by the DC discharge was investigated by ESR method. The typical ESR spectrum of PPNA is shown in Fig. 3.

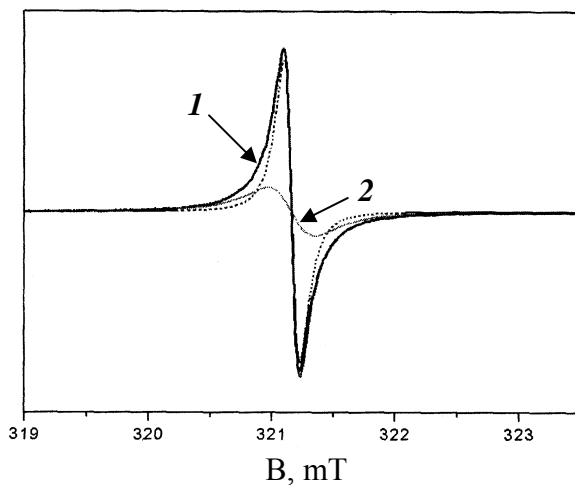


Fig. 3. A typical ESR spectrum of PPNA and its resolution on spectra of (1) long and (2) short polymer chains.

It is presumed that this spectrum is a sum of signals from radicals located on the polymer chains of different length. Fig 3 shows the resolution of PPNA spectrum on 2 spectra of (1) long and (2) short polymer chains. It is found that the spin concentration is equal to  $\sim 10^{19}$  spins/g, the line width at 300 K is equal to  $\Delta B = 0.13$  mT, and  $g$  factor is equal to  $2.0020 \pm 0.0002$ .

The data obtained confirm the presence of aromatic free radicals localized near nitrogen atoms [10].

**Acknowledgements.** This work was supported by the Russian Foundation for Basic Research, project no. 10-03-00772-2a.

#### References

1. Kim, J.-E., Son, S.-H., Bae, J.-S., Lee, Y.-G., Kim, K.-K., Lee, J.-C., Jang, J.-G., and Im, S.-G., US Patent 7604874, 2009.
2. Yasuda H., *Plasma polymerization*. Missouri: Academic, 1985.
3. Friedrich J. // *Plasma Process. Polym.* 2011, **8**, 783-802..
4. Moon, D-K., Osakada K., Maruyama T., Kubota K., and Yamamoto T. // *Macromolecules*, 1993, **26**, 6992-6997.
5. Riaz U., Jahan R., Ahmad S., and Ashraf S.V. // *J. Appl. Polym. Sci.* 2008, **108**, 2604-2610
6. Schmitz, B.K., and Euler, W.B. // *J. Electroanal. Chem.* 1995. **399**, 47-53
7. Ciric-Marjanovic G., Marjanovic B., Stamenkovic V., Vitnik Z., Antic V., and Juranic I. // *J. Serb. Chem. Soc.* 2002, **67**, 867-877.
8. Drachev A., Gilman A., Obolonkova E., and Kuznetsov A. // *Synth. Met.* 2004, **112**, 35- 40.
9. Yablokov M., Gilman A., Surin N., Semenov I., Kuznetsov A., and Chmutin I. // *High Energy Chem.* 2010, **44**, 431-435.
10. Gong X., Dai L., Mau A.W.H., and Griesser H.J. // *J. Polym. Sci. Part A: Polymer Chemistry*, 1998, **36**, 633-643.