

the guru



Sifang Electric Group was established in 2006.

Welcome

for you



WXB-D1: Microprocessor based Line Protection Relay



MDP-1



CSL 101A-S: Digital Line Protection relay

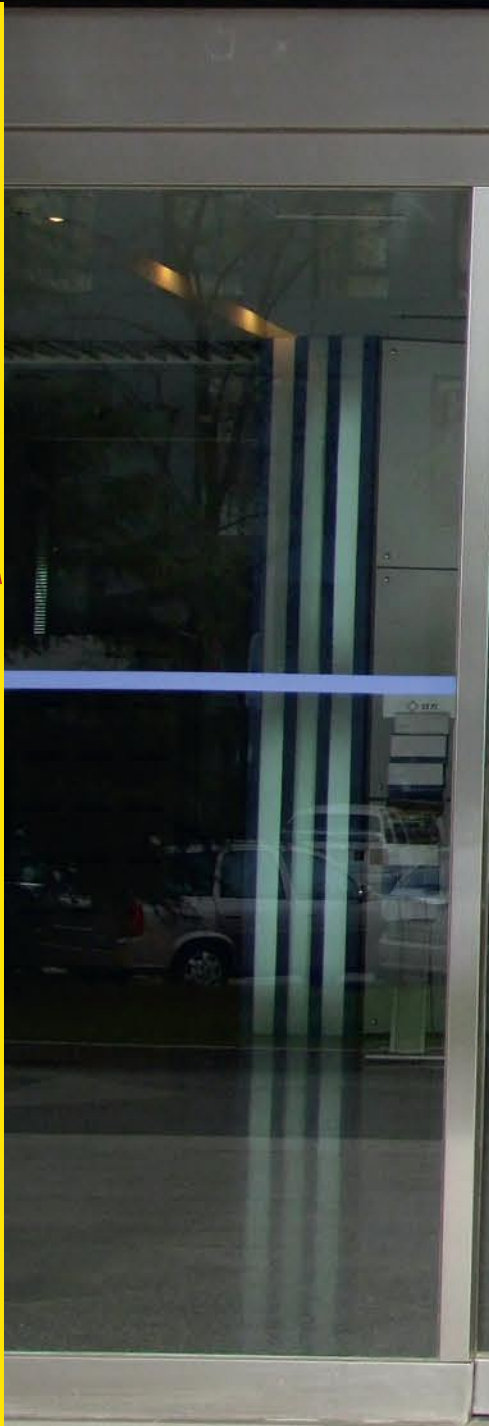


WXB-11: Microprocessor based Line Protection relay



Digital distance protection MDP-1

There are three generations of microprocessor relays.



# Come to Sifang!



Try to see  
other people's  
advantages.  
Try to  
understand  
them.

#### Biography:

Prof. Yang was born in Shanghai, China. He received his Electrical Engineering degree from Zhejiang University, China in 1960 and his Ph. D. from the University of New South Wales, Australia, in 1982. 1960 - 1979 he was Lecturer in North China Electric Power University. After his return from his Ph. D. studies in Australia he developed in 1984 the first microprocessor based protective relay in China.

In 1986 he was awarded the "Science and Technology Elite" by the government of Hebei province, China, and "Youth Technologist of the Outstanding Contribution" by the Chinese government.

In 1987 he became Professor in North China Electric Power University (NCEPU).

In 1990 he developed the second generation microprocessor based protective relay using multi-CPU hardware. In 1994 he developed the third generation protection, was awarded "Academician of Chinese Academy of Engineering" and became CEO of a Chinese-American company - Hathaway Sifang Protection and Control Company Ltd., that he set up. Since 2006 he is the Chairman of the Board of the new Sifang Electric Group.

He has authored more than 80 papers and a book on Basics of Microprocessor Based Protection.



Year 2004

prof. Yang and his

entire family.

**PAC World:** You were born in Shanghai in 1937.

**What are your earliest memories from this city?**

**P.Y.:** That was the time of the Japanese war. My memory is from a French occupied area – very quiet and not affected significantly by the war. I remember when the war ended – it was a great celebration.

**PAC World:** You attended the Attached Middle School of Saint John's University in Shanghai. Did it have a curriculum different from other schools?

**P.Y.:** Yes, it was different during my first year there. It had a great impact on me – all the classes were taught in English. However, the next year all Chinese schools were unified with an identical curriculum.

**PAC World:** Were there any members of your family with technical interests?

**P.Y.:** My father was an economist. I have four brothers – two electrical and two mechanical engineers. At my time that was the first choice, because China needed a lot of engineers. Most of the Soviet movies at this time that we were watching were promoting engineers.

Maybe that is the reason that many of the Chinese leaders were and still are engineers.

**PAC World:** Did you have any special interests while in school?

**P.Y.:** I liked sports. I played baseball. At school I just played. At university I was in the team and also in the province team. All my brothers played baseball. I am the second brother.

**PAC World:** How and when did you decide to study electrical engineering?

**P.Y.:** One of my teachers in physics had a great influence on me. He taught us about electricity and made me think that there are many interesting things in it. It was one of the topics that have greatly developed, but at the same time there

were still many things that were not clear. The competition to get into electrical engineering was very tough - you needed a very high score to get in.

**PAC World:** After graduating from high school you attended Zhejiang University?

**Why did you choose this university and what did you study there?**

**P.Y:** Very simple – my elder brother went there. It was also the best university around Shanghai.

**PAC World:** Did you take any electric power systems protection classes while at the university?

**P.Y:** Yes, but not much. We had very narrow specialty – mine was electrical machines manufacturing. It helps me now since I am in manufacturing today.

**PAC World:** Did you have any other interests while studying? Sports? Music? Arts?

**P.Y:** No, it was just the sports.

**PAC World:** You spent the first twenty years of your career teaching in the North China Electric Power University. Why did you decide to teach?

**P.Y:** It was not up to us to choose. In 1960 the university told you where to go after graduation. But after I got the job, I loved it. The students in my classes give me very good questions and after the class the most benefited person is the teacher.

**PAC World:** Do you see any difference between the students you were teaching thirty years ago and today?

**P.Y:** I think they changed a lot. I don't know what is good and what is bad. In my time the students didn't have many other things to think about. Today life is so multicolored. Another difference is that today they are very highly selected, very clever and smart.

At my time many students were not worth it – they were also picked for political reasons.

**PAC World:** In 1979 you went to Australia to work on your Ph. D. degree at the University of New South Wales. What made you do that?

**P.Y:** I was among the first 200 people to be sent to the Western world to study advanced science. Dung Siao Ping made this decision.

I was selected by the university and one of the main criteria was knowledge of English.

**PAC World:** What was the subject of your research and why did you select it?

**P.Y:** I picked microprocessor relaying because my university was at the time a second level university, but with ambitions to go up. We understood that we are lagging behind in protection technology. We could not compete with the big universities in traditional technology.

It was a gamble. But we believed that it is the future and that is why I went to Prof. Morrison.

**PAC World:** After receiving your Ph. D. you developed the first microprocessor based protection relay in China. What type of relay was it?

**Was it completely microprocessor or was it a hybrid with solid-state technology?**



at the University of New South Wales, Australia.

**P.Y:** It was a distance relay for 220 kV. Completely microprocessor based.

**PAC World:** In 1986 you were recognized as "Science and Technology Elite" by the government of Hebei province, China. You were also awarded "Young Technologist of the Outstanding Contribution" by the Chinese government.

**What was the reason for receiving these awards?**

**P.Y:** It was mainly the development of the first microprocessor relay. It was accepted by the industry - at the time all six relay manufacturers were using my design.

**PAC World:** What do you consider the biggest challenge of your professional career?

**P.Y:** I can still remember this project. I came back from Australia in 1982 and the first relay was installed in 1984. It was a very difficult time. We had many failures. Mainly EMC problems. The first prototype in the lab was very sensitive – we turned on the lights and it tripped. In Australia it was just a lab device. Resolving the EMC issues was the biggest challenge.

After that I published a paper and it was awarded as an excellent paper by the CSEE (Chinese Society of Electrical Engineers).



We believed



that

microprocessor

relaying is

the future of

our industry.

**PAC World:** Have you been involved in any international industry organizations – CIGRE, IEC, IEEE?

**P.Y.:** I never tried to apply for that, but I am a member of the Chinese CIGRE national committee.

**PAC World:** In 1987 you were promoted to Professor at the North China Electric Power University and later approved as Ph.D. tutor by the Academic Degree Committee of the State Department of China.

**How significant were these two events to you?**

**P.Y.:** It had a lot of impact – you will get a bigger house. From all people at my age I was the first one to get to this level.

**PAC World:** In 1990 you developed the second generation microprocessor based protection.

**What were the main differences compared to the first generation?**

**P.Y.:** At that time it was significant – the analog to digital converter was the most expensive part in the relay. We wished that each processor works for a different protection principle. So we wanted them to share the common A/D.

**PAC World:** After thirty three years of academic career you decided to move to the manufacturing side of the industry by setting-up the Beijing Sifang Protection and Control Company Ltd.

**What made you do that?**

**P.Y.:** It is a long story. I already had a link with the industry – they were using my technology. Protection is a very practical subject. Teaching without a link to the university does not work. We started Sifang (which means four parties) as a joint venture – two biggest manufacturers, the university and the Ministry of Electric Power.

**PAC World:** In 1994 you developed the third generation of microprocessor based protection and became an Academician of the Chinese Academy of Engineering. Is there any link between the two events?

**P.Y.:** I want to make clear that we can talk about generations only in our development. We wanted to have the protection in a single chip – so it is better protected from the EMC. That is why we developed a single chip relay.

**PAC World:** You received many other awards. Which one of them is most significant and why?

**P.Y.:** Becoming a member of the Chinese Academy is the most significant.

**AC World:** Are you familiar with protection philosophies in other countries? Do you see any differences between protection philosophy in China and others?

**P.Y.:** In the past ten years I cared very much about what people think. The difference is maybe that in many countries failure to trip is considered the most serious problem, while unwanted trip is not such a big deal. However for us it is as important as the failure to trip.

**PAC World:** Are you following IEC 61850? What do you think is its impact on the future of protection?



**P.Y:** Yes, our company is following it very closely. It seems that this is where the industry is going and we already have it implemented in our devices and certified by KEMA.

We are also doing process bus.

By the end of this year there will be a 500 kV substation equipped with our relays.

**PAC World:** **Do you still participate in conferences and present papers?**

**P.Y:** Some times I still present papers, but I am no longer at the front line. Last year I made a presentation about China's protection and control at a CIGRE conference.

**AC World:** **What do you consider your greatest professional achievement?**

**P.Y:** Among my greatest professional achievements could be considered the following two things:

- The microprocessor based distance relay
- The bay oriented substation automation system

I was the first to call for that in China. It resulted in a second award paper recognized by the CSEE.

**AC World:** **What do you think is your greatest personal achievement?**

**P.Y:** I educated my two children – my son and my daughter. They both graduated from Beijing University – the top one in the country. My son studied communications and electronic engineering and my daughter – biochemistry.

Now they are both in the US. My son got PH.D from University of PENN.

My daughter got MBA from Harvard. She works for a

medical insurance company – so her biochemistry education helps.

**PAC World:** **Do you consider retirement?**

**P.Y:** Every year I say that it will be next year. My definition of retirement is that I don't need to go to the office every day. I am still professor at the University and Chairman of the Board of the company.

**PAC World:** **What do you think about the impact of the Internet on education?**

**P.Y:** That is very important. I don't use it very much. But the young people use it for everything. In our company R&D people rely on it a lot. Continuing education is based on the Internet as well. Some are worried about the negative side – maybe people use it too much.

**AC World:** **How do you spend your time when you are not working?**

**P.Y:** I still have my non-technical research interest. It is longevity. I try to learn traditional Chinese medicine, diets. I also like to talk with my friends and watch movies.

**AC World:** **What movies do you like to watch?**

**P.Y:** During different periods of my life I had different interests. Today my favorites are action movies.

More than ten years ago I liked foreign movies, but today these movies have become too complicated.

When I was young I liked love stories.

**PAC World:** **What is your favorite food?**

**P.Y:** Sweet things, but I have high blood sugar, so I can't do it. It is unfair.



with his daughter and wife at the Harvard University campus



Sifang is committed to excellence in the field  
or electric power systems protection and  
automation.

**PAC World:** Our industry is facing significant challenges due to the lack of interest of young engineers in electric power systems protection.

**Do you have similar problems in China?**

**P.Y.:** I don't think it is that serious. It is a better paid job. There is new technology involved. Our university is focused on power and our threshold for accepting students is very high.

**PAC World:** What is the advice you usually give to young engineers?

**P.Y.:** My advice is out of date. I usually tell them not to become managers. I try to make them keep working on their technical skills.

There is a theory in management called "H". Top level technical and management people should be paid the same.

**PAC World:** Do you have a "motto" of your life?

**P.Y.:** Try to see other people's advantages, try to understand them. Many people only see their own advantages and can not work well in a team.

